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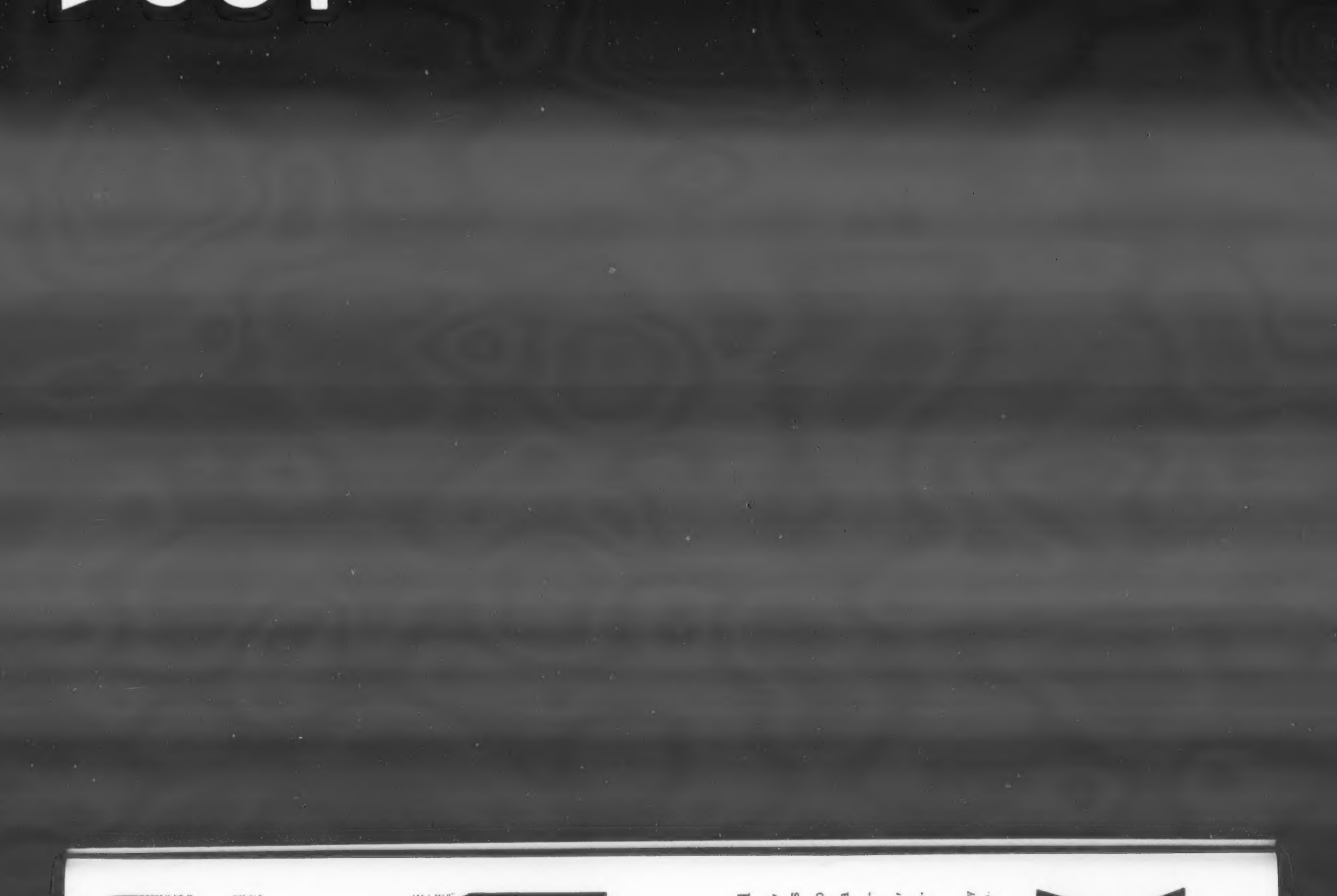

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(1) 1932. Ztschr. f. Untersuch. d. Lebensmitt. 63, 1.
1933. J. Biol. Chem. 103, 687.
(2) 1938. J. Amer. Med. Assn. 111, 1290.
(3) 1932. Ind. Eng. Chem. 24, 650.
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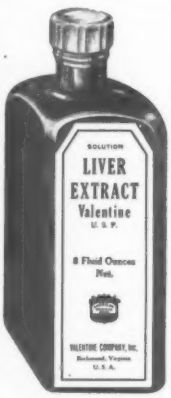

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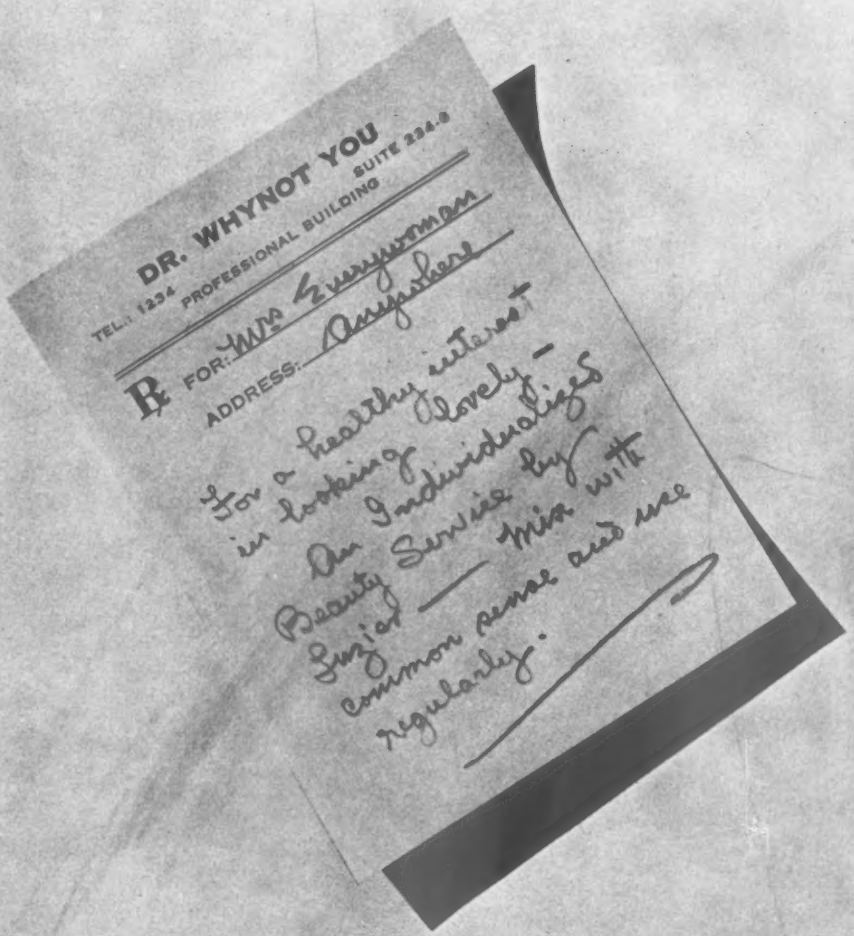
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RICHMOND, VA., JANUARY, 1939

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THE EFFECTS OF PROTRACTED AND RECURRENT CONGESTIVE HEART FAILURE ON THE LIVER.*

FREDRICK A. WILLIUS, M.D.,
Section on Cardiology, The Mayo Clinic,
Rochester, Minnesota.

Discussions dealing with heart failure too frequently are confined to a consideration of the heart alone. Such a limitation, obviously, disrupts the continuity of the theme, owing to the fact that heart failure results in circulatory changes that influence the function and condition of the various organs and tissues of the body. The reactions of these structural components to circulatory disturbances differ and an understanding of the variations is of definite importance. It thus becomes apparent that the effects of heart failure on the circulation in general and therefore on the ultimate periphery (arteriolar-capillary bed) must be considered and also the effects on the function and structure of vital organs such as the lungs, liver, kidneys, brain and the other tissues of the body. In this paper I will confine my remarks chiefly to the liver.

Any cardiopathy, regardless of the underlying pathologic change, may eventuate in the well-known syndrome of congestive heart failure. While most of the lesions or stresses responsible for heart disease primarily and predominantly affect the left side of the heart, ultimate failure of the right side of the heart occurs. Under this set of circumstances stasis in the systemic venous circulation ensues and varying degrees of passive congestion of the liver occur as a result of stasis in the portal circulation.

Chronic passive congestion of the liver results when heart failure becomes protracted or recurs frequently. It is not uncommon for the liver to increase enormously in size so that it extends to the level of the umbilicus or even below this level. At times, the degree of portal stasis is disproportionate to the stasis in the systemic circulation, probably because the obstruction to the flow of blood in the hepatic veins is greater than the obstruction to the flow of blood in the inferior vena cava. The capillaries of the portal system also possess a relatively high degree of permeability.

The effects of chronic passive congestion on the liver have been controversial for nearly a century; the issue involved chiefly the production of hepatic cirrhosis. Becquerel, in 1840, was the first to formulate the belief that the chronic passive congestion resulting from heart failure produced hepatic cirrhosis. This opinion ultimately resulted in the rather widespread acceptance of the term "cirrhose cardiaque". At irregular intervals during the ensuing years the literature on this subject has been amplified greatly by the opinions of protagonists[18, 37] and antagonists[1, 8, 10-17, 19-21, 23, 24, 29-31, 34-36, 38, 40-42] of Becquerel's tenets. Budd, as early as 1857, made the observation that the liver in some cases of chronic valvular disease was decreased in size, but he was reluctant to believe that this resulted from heart failure alone.

In 1883, Sabourin reported the results of his classic studies on chronic passive congestion of the liver. In general, he accepted Becquerel's views. He found that the degenerative processes, as they occurred in cases of congestive heart failure, resulted in capillary dilatation and trabecular atrophy. He found that the new connective tissue first was formed in these zones of atrophy about the central vein. He expressed the opinion that the sequence of events leading to fibrosis depend on a thickening and contraction of the strands of connective tissue which line the spaces about the central veins and that the thickening and condensation eventually lead to the stage of central cirrhosis. He said that this type of cirrhosis is readily recogniz-

*Read by invitation at the sixty-ninth annual session of the Medical Society of Virginia, at Danville, Va., October 4-6, 1938.

able, because it connects central vein to central vein or sublobular vein and thus encircles the hepatic tissue of the peripheral portion of adjacent lobules. Such an arrangement obviously produces an apparent reversal of the usual order, the portal system at times being in the center of the lobule.

Parmentier, in 1889, recorded the first experimental work on this subject. He was able to produce chronic engorgement of the liver in animals by the creation of tricuspid regurgitation but was not successful in producing hepatic cirrhosis.

Lambert and Allison, in 1916, studied 112 cases of chronic passive congestion of the liver and recognized five types of changes. The first type consisted chiefly of capillary dilatation and atrophy of the central cells; the second type consisted of central degeneration with or without congestion; the third type consisted of a central accumulation of fat with hyperemia or necrosis of the mid-zone; the fourth type consisted of central necrosis, which usually was associated with hemorrhages, and the fifth type was described as a "collapse fibrosis", a condition which the authors considered synonymous with "cardiac cirrhosis". The last type occurred in 14.2 per cent of their cases.

Ophüls, in 1926, found "cardiac cirrhosis" in only 0.7 per cent of 3,000 necropsies.

It was not until 1930 that Zimmerman and Hillsman brought forth convincing experimental evidence that hepatic cirrhosis may result from severe chronic passive congestion.

In a recent study of seventy-five cases of cardiac disease in which prolonged single or multiple episodes of congestive heart failure had occurred, Boland and Willius reported the changes which they found in the liver. These cases were selected from a group of 500 cases of chronic passive congestion of the liver, but the exclusion of many cases was necessary owing to the short duration of the heart failure. Edema of the dependent portions of the body was present in all the cases selected for study and most of the principal forms of heart disease occurred in the series. The ages of the patients ranged from five to eighty-five years, the average age being 55.6 years. Fifty-six of the patients were males and nineteen were females. Ascites occurred in 86.6 per cent of the cases and icterus occurred in 14.6 per cent.

HISTOLOGIC CHANGES

The histologic changes found in the livers permitted the cases to be divided into three general groups: (1) A group demonstrating atrophy, necrosis or both, in the hepatic lobule without evidence of condensation of the reticulum or cirrhosis; (2) a group presenting atrophy or necrosis together with condensation of the reticulum and thickening but without cirrhosis, and (3) a group showing actual hepatic cirrhosis.

Group 1.—Thirty-seven cases (49 per cent) were placed in this group. The microscopic changes in these cases were similar to those generally described as occurring in chronic passive congestion. The atrophy or necrosis was always most marked in the central third of the hepatic lobule, especially immediately adjacent to the central vein. The degeneration decreased in degree as the periphery of the lobule was reached. In some cases a variable degree of necrosis apparently was superimposed on the atrophic central lobular cells. When necrosis predominated in the central portion of the lobule, the hepatic cells surrounding the necrotic region usually showed some degree of atrophy. In many cases the degeneration extended from central vein to central vein, giving the appearance of reversed lobulation. The degree of degeneration was variable. In six cases there was only a minimal amount of central atrophy. In twenty-six cases there was a moderate to marked degree of atrophy in the central third of the lobule, with a decreasing amount of atrophy in the middle and peripheral zones. Marked necrosis of the central cells with atrophy in the peripheral cells was present in three cases. In seven cases there was marked atrophy of the central lobular cells with superimposed necrosis.

Group 2.—The second group comprised thirty-three cases (44 per cent). In these cases there was evidence of condensation of the reticulum in the degenerated regions. This condensation of reticulum was always most marked in the degenerated regions and seemed to vary proportionately to the degree of degeneration present. However, as was observed in the preceding group, marked degeneration might occur without a condensation of reticulum. The condensation appeared to have been caused by the collapse of the central portion of the lobule as a result of the destruction of the hepatic cells in that region. Close observation of the reticulum fibers revealed that they actually appeared thicker than the normal fibers. Reverse lobulation to some degree could be demonstrated in every case in this group. The reversed arrangement was most distinct in those cases with pro-

nounced condensation of reticulum. In some regions the condensed reticulum extended so well from central vein to central vein that a definite band of fibers could be seen surrounding the peripheral zones of the remaining hepatic tissue, a portal radicle being situated in the center of this apparently reversed lobule.

The degree of condensation and thickening of the reticulum varied in this group. In twenty-four cases the condensation was not pronounced; in seven it was moderate and in five cases it was marked. Cases showing a moderate and marked degree of condensation would probably be classified by some investigators as cases of "cardiac cirrhosis". However, with careful study of the sections, no proliferation of fibrous tissue was found but rather only condensation and thickening of preexisting reticulum fibers. For this reason such cases should be designated as demonstrating condensation of reticulum resulting from chronic passive congestion rather than being classified as cases of true cirrhosis.

Group 3.—Five cases (7 per cent) of the series presented a true cirrhosis. These cases showed marked degeneration of the central lobules and condensation of reticulum. Reversed lobulation was prominent. There appeared to have been almost complete destruction of entire lobules in certain scattered regions. Extensive collapse of the necrotic regions evidently occurred and portal radicles appeared to have been caught in the massive coalescence. In these regions proliferation of fibrous tissue had occurred and fibroblasts could be identified by the immersion oil objective. In addition, the normal architectural arrangement of the liver was disrupted and an increase in the number of lymphocytes was seen in some of the fibrotic regions. An apparent increase in the number of bile ducts was frequently observed. In three of the five cases there appeared to be adenomatous regeneration of hepatic tissue. The cirrhosis in these cases was not uniform throughout the sections but was scattered in an irregular manner. Between the regions of fibrosis the hepatic tissue was the site of central lobular degeneration, condensation and reversed lobulation. At times the bands of condensed reticulum could be seen to join regions of fibrosis. Indeed, it appeared that entire lobules had degenerated and collapsed in some regions, and that these regions served as sites for the proliferation of fibrous tissue. The patchy nature of the fibrosis and the intervening regions of central degeneration and condensation of reticulum made the picture differ considerably from that usually seen in advanced portal cirrhosis.

One case failed to show marked central destruction of the lobules, with condensation of reticulum and reversed lobulation. There was, rather, only a mild degree of central atrophy in lobules which persisted between the scattered regions of fibrosis. This case presented certain clinical features which suggested that the hepatic cirrhosis may have preceded the onset of congestive heart failure.

In three cases there was a history of repeated episodes of congestive heart failure with intervening periods of partial recovery, while in two cases there had been a single continuous period of congestive heart failure; in each of these cases periods of complete rest in bed had resulted in considerable improvement.

COMMENT

Mallory,[25–27] as well as earlier workers, insisted that in cases in which severe central necrosis of the liver cells was associated with congestive heart failure there were additional etiologic factors, particularly toxic or infectious agents. However, the clinical records and the associated postmortem findings in these cases do not correspond with sufficient regularity for the definite establishment of either a toxic or infectious origin for the necrosis. It is an acknowledged fact that many toxins exert their first demonstrable effects on the central cells of the hepatic lobule. Bollman, Mann and Magath[4–7, 28] have clearly shown that impairment of the circulation of the liver increases the action of many hepatic toxins. It is therefore not possible to exclude irrevocably the possibility of a concomitant toxic factor in these cases. That some factor besides chronic passive congestion may participate is suggested by the fact that one cannot predict from the clinical history or the physical findings whether the liver will reveal atrophy or necrosis. The contention for the toxic factor finds support in some cases by the demonstration of many polymorphonuclear leukocytes in the necrotic regions. However, these cells may invade sites of necrosis regardless of the cause of the necrosis.

It is interesting to recall that only five cases (7 per cent) of the entire group presented changes that conformed to all the requisites of hepatic cirrhosis, It appears reasonable that cirrhosis occurring as a result of chronic passive congestion will be found in those cases in which there have been repeated epi-

sodes of congestive heart failure rather than in those cases in which there has been sustained failure. If the chronic passive congestion is severe enough to produce necrosis of hepatic cells, it is severe enough to prevent proliferation of fibrous tissue and adenomatous regeneration. Certainly, then, the cirrhosis must develop during periods of partial or complete restorations of cardiac function.

On the basis of the experimental work of Bollman and Mann, together with the microscopic findings in these cases, it seems justifiable to postulate the genesis of cirrhosis. The degeneration resulting from chronic passive congestion of the liver appears to vary in its extent and severity in different lobules. Some lobules may be completely destroyed, whereas others show degeneration in only the central portion. The partially destroyed lobules probably are repaired, during intervals of improvement in cardiac function, to a state closely approximating normal, a thickened reticulum remaining as the only relic. When entire lobules are destroyed, the change appears to be irreparable and the microscopic findings certainly suggest that in some regions whole lobules have been completely destroyed. In these extensively degenerated regions a collapse of the reticulum apparently has occurred. One or more portal spaces frequently are found in the coalescent masses of reticulum. It is in these patches that proliferation of fibrous tissue and, at times, adenomatous regeneration of hepatic cells are observed. Bollman and Mann, in their report on experimental cirrhosis, suggested that the fibrous tissue developed from that already present about the portal spaces. This likewise may be the source of the fibrosis in these cases. The adenomatous regeneration probably proceeds from the few hepatic cells remaining in the collapsed lobule. It it therefore probable that, during the periods of partial cardiac recovery, fibrosis occurs in the region of complete lobular destruction. In the partially destroyed lobules, repair occurs; this restores the lobules to a state approaching normal. The rôle played by toxins as a contributory agent in the production of the cirrhosis is as obscure as it is in those cases in which necrosis occurs alone.

Grossly, three of the cirrhotic livers were described as being nodular and firm in consistency while the others demonstrated the typical mottling of the "nutmeg" type and offered increased resistance to cutting.

Little correlation occurred between the clinical history and the microscopic findings in this series of seventy-five cases. Ascites was present in each case of cirrhosis, but it was also found in 86.6 per cent of the entire series. Icterus occurred in one case of cirrhosis but was present in 14.6 per cent of the entire series. Obviously, neither ascites nor icterus could then serve as a diagnostic criterion of cirrhosis.

Liver function tests were made in only three of the seventy-five cases; this number is too few to allow correlation. However, the bromsulphalein test has been carried out in other cases. In these cases either temporary recovery occurred or necropsy was not permitted. These observations indicate that marked degrees of impairment of hepatic function, as expressed by the retention of the dye introduced into the patient's blood stream, are extremely uncommon. By denoting the grades of retention of the dye on a numerical basis (that is, one to four), it is found that in the majority of cases the retention is grade one and in a smaller group of cases it is grade two. Higher grades of retention rarely are encountered. It is probable that functional impairment of the liver, as determined by laboratory methods, would for the most part serve as an index to the degree of necrosis or atrophy rather than as an index to the degree of cirrhosis.

The most suggestive evidence available at this time in the clinical prediction that "cardiac cirrhosis" may be present in a given case probably may be inferred from the facts disclosed by this study. This evidence includes the history of recurrent, severe episodes of congestive heart failure for a relatively long time, with intervals of improvement in cardiac function when the liver receives some respite. However, in the clinical appraisal of the individual case this evidence appears to be of limited value, owing to the fact that even under these circumstances the development of true "cardiac cirrhosis" is uncommon.

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THE PROBLEM IN CARING FOR THE MENTALLY SICK IN VIRGINIA.*

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NOTE:—The statistics presented here were obtained from the State Hospital Board and from authoritative text books on psychiatry.

The problem of caring for the mentally sick has lately attracted widespread attention in this State. It is wholesome to note the increased interest in mental hygiene problems as demonstrated by the subjects of the various addresses shown on programs of non-medical groups, and the frequency with which constructive and intelligent editorials are written on this subject in the columns of our better newspapers throughout the State. The problem is not one of simply housing the mentally sick nor of segregating them from normal individuals, but it is also that which necessitates intelligent care and treatment of them.

Every physician in Virginia should be proud of its long and honorable record in the care of the mentally sick in this State. Virginia, as a pioneer in this field, boasts of the fact that the Eastern State Hospital at Williamsburg is the oldest public institution in the country solely for the care of the mentally sick. It was founded in 1773 by the Provincial Assembly of Virginia, and has continuously functioned at Williamsburg since April 28, 1774, when the first patient was received. The original building was burned in 1885. In 1828 it became necessary to open a second hospital for white patients in Staunton, which institution is now known as the Western State Hospital. Our colored hospital for the insane was first established near Richmond in 1869, and in 1882 patients were received at the present State Hospital at Petersburg. The Southwestern State Hospital was opened at Marion in 1887. In 1911 an institution for the epileptics was opened near Lynchburg, which institution has developed into the State Colony for Epileptics and the Feebleminded. An act of the recent General Assembly created a colony for the colored feebleminded on the Seward Farm near Petersburg, which property was owned by the Central State Hospital. This institution will be opened as soon as it is possible to complete it, and as far as we are able to ascertain, it will be the only institution for the care of the colored feebleminded, exclusively, in the United States. It will be a separate institution, with its own superintendent, as a unit of the State Hospital Board, under the supervision of the Director of State Hospitals.

Statistics concerning the extent of the mental problem for the whole United States, bring out the fact that there are more individuals occupying beds in mental hospitals today than there are sick persons in hospitals for every other reason, including tuberculosis.

It has been said statistically that insanity has been increasing during the past fifty years about three hundred times faster than the population, but these statistics are not so alarming when they are correctly analyzed and properly interpreted. This increase in insanity is due to a number of factors: (1) diagnosis of mental and nervous disorders is more critical and discriminating; people are being called insane today, who formerly had some other diagnosis. People were formerly regarded as "queer" but now are definitely diagnosed as being psychotic; (2) it is easier to count those who are mentally sick today, for the reason that there is a greater tendency to place the milder types of psychosis in institutions than there formerly was; (3) the life span of an individual has greatly increased in the last fifty years; more people now live to reach the age at which certain types of mental breakdowns occur. There has been an increase in the urban population, and it is an accepted fact that neurotic individuals break down more frequently under the pressure of urban life than when living in the quiet country-side.

The following figures give you an idea of the problem confronting us. 7,000 babies are born every twenty-four hours in the United States. Of these, many will be claimed by disease, but it is startling to know that of those who live to reach adulthood:

One out of 25 will become insane;
Four out of 25 will become profoundly neurotic;
Four out of 25 will become moderately neurotic;
Four out of 25 will become mildly neurotic; and
Twelve out of 25 will be fairly normal.

The figures concerning the adolescent situation—that is, the youths from thirteen to nineteen years of

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age, inclusive—are no more comforting. There are supposedly 14,000,000 adolescents who come within this age bracket. Of these, there are:

In School	7,500,000
Not in School (Illiterates))	200,000
Married	800,000 (650,000 girls)
Employed	4,500,000 (450,000 under 18)
Feebleminded	300,000
Insane	15,000
Delinquent	100,000
Serious behavior problems	75,000
Deaf or blind	10,000
Physically deficient—diseased and defective	500,000

For every one hundred thousand of the general population, seventy-six mentally defective persons are admitted to mental institutions each year. Statistics show that 10 per cent of the population of the state of New York is mentally defective, one person in twenty-two spending a part of his life in a hospital for the insane. Four of every one hundred children who enter school in the United States and Canada will sometime be admitted to a mental hospital. It is estimated that there are 650,000 feebleminded persons at large, outside of institutions. The number of epileptics in the United States (there are nearly 200,000) is increasing year by year, and of these a large percentage is feebleminded. There are over one hundred thousand paupers in alms houses—this is a rapidly shifting group, drifting into, and out of, these institutions, which suggests that they are inefficient and low grade mentally. We must face the appalling fact that 75,000 adults (50 per cent of them under forty years of age) go insane each year in the United States and are committed to institutions. These figures represent new admissions, and do not include the feebleminded and epileptic.

There are about 750 public and private institutions devoted to the care of the insane, the defective, and the epileptic in this country. They receive considerably over a hundred thousand patients each year—not including over 25,000 re-admissions. It is a fact worthy of contemplation that 25 per cent of all admissions to institutions for the insane have been previously admitted from one to five times.

We should not fail to consider the fact that there are many mildly psychotic individuals who never reach public hospitals but who are cared for in homes. Likewise, there are the borderline psychoneurotic disturbances which are often just as serious and disabling in their consequences as the more severe ones, yet they do not always require institutionalization. It is conceivable that only a very small portion of this great army of mentally sick persons come to the attention of a psychiatrist during the stage of incipiency, when psychiatry is often able to offer something constructive in the treatment of these patients. Physicians will all admit that there are many persons threatened with unrecognized psychotic upsets, who are to be found in the consulting room of every busy practitioner. It is unfortunate that so few of our profession, outside of the specialty of psychiatry, have a real concept of the problem, and are in reality sympathetic with the subject; even fewer physicians understand the proper psychiatric approach. It is undoubtedly true that many psychiatrists are born, and no matter how long an attempt may be made to train some individuals in the field of psychiatry, the effort will never be successful, whereas, many physicians practice psychiatry successfully, without knowing it, who have had little or no formal training. Just think what a splendid psychiatrist that individual could be, were he cognizant of his inherent ability in the field, and how much more he could accomplish with the proper amount of formal training!

In a recent fiscal year, there was expended for the mentally diseased in the United States over one hundred million dollars. We are annually taxed for the care of the mentally diseased, the defectives, and the delinquents, 35 per cent of the total expenditures of all the states for public education.

There are more than 10,000 patients actually in the State hospitals of Virginia, and there are over 15,000 on the rolls of these institutions, which number includes those on parole. It costs the State of Virginia more than $2,500,000 per year for the care of these patients.

The total cost of caring for a patient in a State hospital in Virginia is $148.19 per year, which includes all services and capital outlay; whereas, in Maryland they spend $214.25; in South Carolina, $223.68; and in the United States as a whole $253.17 per patient per year. A striking comparison is the amount paid for food and in salaries and wages for personnel. Virginia spends out of the yearly per capita cost only $54.00 or 36 per cent of the patient's dollar, whereas, in the United States as a whole, the amount paid in salaries and wages per patient is $122.07 or 48 per cent. New York spends approximately $191.00 per patient per year; the United States Government at the St. Elizabeth's Hos-

pital in Washington, spends 70 per cent of its patient's maintenance dollar for salaries and wages. In 1937 Virginia spent 2.3 per cent of its total expenditures on State hospitals and in the same year Massachusetts spent from fifteen to 20 per cent of its total expenditures on the same service.

It is absolutely impossible to estimate with accuracy the extent of mental illness and feebleminded-ness in Virginia; however, the National Mental Hospital Survey Committee in its survey recently made has estimated that there are approximately 1,455 persons now in their homes in the State of Virginia who need mental hospitalization. This approximation is based on the experience of other states. In addition to these figures, the alms houses and the city and district homes house about 1,600 inmates, a large per cent of whom (possibly fifty or seventy-five) may be considered as a part of the present and future mental problems of our State.

The report of the Virginia State Planning Board, recently exhibited, estimates that there are some 520,000 negroes in the State of Virginia; of that number some 14,250 are feebleminded. The present plan is to house in our institution for the colored feebleminded a maximum of 1,800 persons, which will be only about one-eighth of the estimated negro feebleminded population in this State. The State Planning Board estimates that there are 37,772 feebleminded white persons in Virginia. In order for them to deal as fairly with the whites as they are supposed to deal with the colored, the white colony for the feebleminded should have a patient capacity of 4,533 patients, excluding the epileptics. The population in September, 1938 in the Colony at Lynchburg, was 879 white feebleminded, which is about one in every fifty of the estimated while feebleminded in the State of Virginia; and the population as of the same date of epileptics at the Colony was 443. The Superintendent of the Colony recently stated "It can easily be seen that it would be out of the question for the State to consider caring for even as few as one in every eight of its feebleminded population." On February 28, 1938, there were 463 persons on the waiting list for entrance into the Colony for the Feebleminded at Lynchburg. Approximately 300 of these were considered to be of the idiot type. Provision has been made in the building program for the next biennium for approximately 300 additional patients in that Colony. What are we going to do with the remaining 163 patients, and for the normal increase for that long period? The present capacity of the proposed Colony near Petersburg will provide only three hundred beds. There are already 393 feebleminded and 210 epileptic patients in the Central State Hospital. How are we going to provide for these and for the normal increase for the next two years? The approximate number now awaiting entrance into the colored institution is not known, but it may be safely assumed that the opening of the new hospital will give impetus to the movement of patients towards that hospital. It has been indicated that the feebleminded hospitals are overcrowded, and have a large and ever increasing waiting list, but these conditions also exist in the mental hospitals, but to a considerably less extent.

For many years, in Virginia, the problem of administration of the State hospitals was dependent upon the Board of *each* institution, together with the superintendent who had full authority. Later, members of the Special Boards of each of the hospitals were formed to constitute a General Hospital Board, which would meet several times a year to formulate policies for the hospital system as a whole. It has been said that the old General Hospital Board was dominated by a group who took the responsibility of handling public funds so conscientiously that it came to be believed that the most important thing was to limit and decrease the amount of money they spent. Formerly, the efficiency of the State hospital superintendents was frequently rated on how cheaply, not necessarily how well, they took care of their patients. In 1937 the Legislature during its special session, enacted a statute which abolished the various special boards of each hospital and the General Board which has been referred to. It created a board of seven men, whose duty it was to administer all of the hospitals as a unit. Formerly, the State hospitals had been a nominal part of the Department of Public Welfare, but this new statute divorced the hospitals from that department, and practically created a new department of the State government to be known as the State Hospital Board.

The Legislature of 1938 also passed legislation in reference to mental health in Virginia, which next to the creation of the State Hospital Board to govern the hospitals as a unit, will probably do more for the improvement of the mental health situations in Virginia than any other one thing that has ever been done in the psychiatric history of this State. It created a Director of State Hospitals, whose duty it

is to supervise, direct and control the various institutions in the State hospital system. He is responsible solely to the State Hospital Board. Virginia was fortunate in having a nationally known man among us, who was perfectly competent to fill this position, and it was, therefore, unnecessary that we go outside of our State to obtain a qualified person. His office, together with the Executive Secretary and statistical and clerical help, is located in the Clinic Building of the Medical College of Virginia in Richmond. This same legislature created a central office for the administration of the State hospital system.

One of the greatest problems challenging the psychiatric ingenuity of the medical profession of this State and the State Hospital Board is the care of alcoholics and drug addicts. A prominent member of the recent State Legislature agitated the creation of a separate institution for alcoholics and drug addicts. This measure failed of passage in the 1937 and the 1938 meetings of the Legislature. There is a considerable divergence of opinion among psychiatric hospital administrators and others who have made a study of the subject as to whether or not alcoholics and drug addicts should be segregated in institutions away from the so-called mental patients. I am unwilling to be dogmatic about it, but it is my belief that these patients can and should be handled in the various State hospitals in Virginia, provided they are segregated from other patients, as the various types of mental diseases are segregated. Certainly, the problem at present is not adequately handled, and I fear that what we are doing for the most part is sobering them up or taking them away from drugs, and turning them back into the community, inviting them to return when they take one drink or when one dose of medicine is taken. The problem is one which seems to me to go deeper than that. These individuals are mentally sick, and for that reason they become addicted to drugs or to the over-indulgence in the use of alcohol as an escape from the problems that confront them in daily life. This view is generally accepted by psychiatrists, although there are some who still feel that this is the wrong approach to the subject. Prolonged hospitalization and proper psychotherapeutic guidance will rehabilitate many of these people.

There is the question of segregating the epileptic from the feebleminded individuals. This would certainly be an ideal situation, but funds are not at this time available for this to be even considered in Virginia.

Some students of the subject have agitated the question of removing the Department of Criminal Insane to the State Penitentiary, where they contend it rightfully belongs. From my point of view, there is no objection to placing a criminal who has developed insanity after conviction in a mental hospital within the confines of the State Penitentiary walls, but it is not fair, to my mind, to put an individual who commits a felony while insane in a penal institution. This latter group are not criminals, but are simply insane individuals who have committed criminal acts.

One of our outstanding needs for the next ten years is adequate building facilities to house our expected increase in patient population. Of equal or greater importance is the material strengthening of the whole personnel at the various hospitals.

The American Psychiatric Association recommends a physician for every one hundred and fifty patients in a mental institution. Another recommendation is that there be one physician for every forty admissions to a mental hospital. In Virginia our patient load at the various hospitals is as follows:

Eastern State Hospital—one physician to every 540 patients
Western State Hospital—one physician to every 582 patients
Central State Hospital—one physician to every 704 patients
Southwestern State Hospital—one physician to every 407 patients
Colony for the Feebleminded and Epileptics—one physician to every 440 patients.

It must be seen from these figures that these physicians could not possibly give new patients adequate time, study and intensive psychotherapy, or other recognized prescribed procedures which might be of benefit and hurry their discharge from the hospital. It is my belief, and I have little fear of contradiction, that if our State hospitals were manned with a sufficient number of qualified psychiatrists we could discharge a much larger proportion of our admissions and in time reduce the increasing population in our institutions.

The American Psychiatric Association recommends one ward employee to every eight patients. In Virginia our load is approximately one to seventeen.

New construction in the whole State hospital system has been authorized for the next biennium, which will provide for between 900 and 1000 additional patients, which will take care of the normal increase

for this period. The increase, however, may be a little above normal, because of the large waiting list for the white colony at Lynchburg, and the opening of the colored colony at Petersburg.

There is too little neuropathological work done in the hospitals. The number of autopsies is entirely too small. This is a valuable source of material for the training of residents and students, as well as improving our knowledge in this important subject. Already, one of the State hospitals has shown a considerable amount of interest in this work and they are having their specimens studied in the neuropathologic service of one of the medical schools.

All well regulated mental hospitals should have a psychiatric social service department. It is, therefore, the desire of the Director to provide this service in each of the various State hospitals. The plan is to appoint one well qualified person to direct this service.

The training of nurses and attendants in the care of psychiatric cases must be improved, and it is the intention of the Director of State Hospitals to have a head of this department, who will coordinate the work in the various hospitals and standardize the teaching and training of nurses and attendants. In reference to the training of psychiatric nurses, the State hospitals can be and are willing to be of service to the public and private hospitals in the State which at this time do not have departments of psychiatry. It is their intention to offer affiliated courses in psychiatry in the various State hospitals which will be open to students and nurses in the non-psychiatric hospitals in the State.

It is unnecessary to stress the need of occupational, industrial, recreational, and hydrotherapy departments in all mental hospitals. There is a minimal amount of this type of treatment carried on in all of the hospitals, and the work will improve as funds and personnel are available for the guidance of this important form of therapy. Industrial therapy is practiced probably on a larger scale than any other in our State hospitals, and is of definite value.

The State Hospital Board is at present negotiating with the Department of Public Welfare for the transfer of the State Mental Hygiene Clinic from that department, making it a part of the State Hospital system. At present, there is an entirely inadequate appropriation for the proper conduct of this service. They are attempting to take care of cases referred by the Children's Bureau of the Department of Public Welfare, and of all delinquent children committed to the Department of Public Welfare by the courts, as well as certain problem children and young adults from all over the State. This Clinic can broaden its scope materially under the proper medical supervision and in cooperation and co-ordination with the staffs of the various State hospitals. It would be able to visit communities throughout the State, and thoroughly study situations from a psychiatric standpoint. Valuable service can be given this clinic through local social workers, county nurses and others; so that with the aid of this service, many major psychiatric problems can be avoided, a criminal life may be aborted, and individuals may be kept out of either a mental institution or a prison. This can be a real beginning in mental hygiene.

A traveling clinic, either psychiatric or otherwise, operated by a State bureau, should be careful to avoid the pitfall of competition with private physicians. The unwholesome situation in which the State of Virginia is in competition with private mental hospitals exists today at one of our State owned institutions.

I think I can assure you that the present State Hospital Board has no intention of entering into competition with private medicine, either from an institutional or from a private practice standpoint. The situation existing at present, which allows an individual of comfortable means who is able to pay for private care, being placed in and treated in our State hospitals without pay, is certainly not fair to private mental institutions which pay taxes. On the other hand, the individual of marginal income or those in the medium income bracket should be allowed to go to a State mental hospital, and after a thorough and satisfactory social service investigation of the family's ability to pay for the care of this individual, they should be charged a moderate sum, the income from which would entirely or partially pay for the care of the patient, and would certainly lessen the burden on the State. This method is being practiced in some states to advantage.

The medical personnel in the state hospitals has been encouraged to take post-graduate courses elsewhere, so that the younger men in the service will be sufficiently and adequately equipped by training to accept promotions in our institutions when vacancies in the higher grades occur. We hope that the training in our own state hospitals will be sufficiently recognized so as to attract more men who desire train-

ing in psychiatry, and in time, we hope that doctors trained in our institutions will be sought for positions elsewhere. It is the desire of the State Hospital Board to import men only when qualified men in our own service are not available for such promotions.

A review of the problem in caring for the mentally sick in our State unquestionably leads us to realize and appreciate the fact that much progress has already been made, particularly in the last few years, toward the improvement of our entire system in Virginia, but we must admit that there is much need for further improvement.

If the present suggestions, plans and proposals made by the Director of State Hospitals and the State Hospital Board can be carried out, there being sufficient funds and personnel available, the people of the State of Virginia will have a state hospital system of which they can be justly proud. In my opinion, the care of the mentally sick in Virginia is *the* major social problem of our modern times.

Professional Building.

DISCUSSION

DR. HUGH C. HENRY, Richmond: In his paper Dr. Gayle has given you statistics which reveal something of the extent of mental illness and defectiveness in the United States and in our own State and the cost of it in money. He did not tell you its cost socially and economically which is far greater. It is interesting to compare the per capita costs of the care of mental patients in the United States and the several states with the per capita allowed for their care in Virginia. The statistics and figures which he has given you are taken from authoritative sources and may be relied upon. I hope when Dr. Gayle's paper is published that you will preserve it for reference and reflect upon it from time to time, because it will be good for your soul to "know the truth." The extent of the bondage in which so many of our fellow citizens are held may not be pleasant reading, but I believe if Dr. Gayle had done no more than expose a body of representative, intelligent and public spirited doctors to the truth, that he has done well.

Dr. Gayle has referred to the long and honorable record which Virginia has in the matter of caring for its mentally sick. I desire to add my testimony and pay tribute to the worth of those who have labored through the heat of the day in caring for our mentally sick and to say that because they were compelled to make brick without straw, it was not of their choosing, and, in spite of all, they did make some pretty good brick at that. But he has told you of legislative action which promises better conditions and more support in obtaining the necessary tools and machinery for doing a better job.

With reference to the problem of caring for and treating alcoholics and drug addicts and whether they should be treated in special institutions or in our State hospitals, it seems to me relatively unimportant provided adequate medical care is given, which means among other things that a proper study is made of the *individual* to determine, if possible, the *cause* of the addiction. Is the patient mentally sick because of the effects of alcohol, or has he a mental illness which caused him to turn to alcohol as an escape? Our knowledge of the subject from a scientific viewpoint is far from satisfactory, and it seems to me we have here a research problem worthy of determined and continued effort.

I am sure there was never any sound reason for mixing the epileptic and feebleminded except an economic one. I have long advocated taking the feebleminded, particularly feebleminded children, out of our State hospitals, and think reasons could be advanced for separation of the feebleminded from the epileptics nearly, if not equally, as good.

In my opinion there should be within the penitentiary a psychopathic department for the care of its insane inmates. It is hardly fair to mix the unfortunate individual who commits a criminal act while mentally ill with those who are properly felons and who later become insane. The patient who is sent to the hospital by the courts for observation pending trial is certainly not (not yet, at least) a criminal, and he may even be innocent of any offense. I have seen many evils resulting from this unsatisfactory, and I think unjust, admixing of the two classes, which would be cured by the establishment of a psychopathic department within the walls of the State prison. Excellent psychiatric consultants are available in Richmond, and the proximity of the Medical College makes the location ideal, both from a therapeutic and teaching standpoint.

The numerical inadequacy of the medical and nursing personnel in the Virginia State Hospitals is perhaps our outstanding deficiency. So great is the deficiency that not even the National Committee for Mental Hygiene recommended in its recent survey, its corrections immediately, but as a gradual process extending over several years, in order that the additional doctors and nurses could be assimilated properly. Adequate medical and nursing personnel would automatically correct Dr. Gayle's complaint as to neuropathological work.

The development of a psychiatric social service, a training school for nurses and attendants, as well as occupational therapy have been given much thought in recent months, and a creditable beginning has been made in at least two of our State hospitals, with the hope of extending the work to the others as means are available.

The *prevention* of mental disease is our only hope for a satisfactory solution of the problem which faces us. If our plans for the development and extension of the State Mental Hygiene Clinic materialize, we will have made a start in the right direction, but in this work the sympathetic cooperation of the doctors of the State will be essential. I am glad that Dr. Gayle in the beginning of his paper stressed the wholesomeness of the general interest which is being taken in mental hygiene problems and gave credit particularly to those editorial writers of our daily newspapers who have written intelligently and

constructively on the subject. These gentlemen, as well as the editors of our medical journals, have been and are rendering a very real service; for without the proper kind of publicity and education, the cooperation of those who make the laws, those who vote for them and those who most need what mental hygiene has to offer cannot be secured.

But his message today is to doctors, and I especially commend to you his excellent paper. I only wish you could have heard, also, one I had the pleasure of hearing him read last week before the Medical Association of the Valley of Virginia. I say this because we who are trying to improve the system of care in the State hospitals and to institute an adequate prevention program need you. The assistance of the laymen referred to is splendid, but our problem is a medical one, and we have a right to expect that those medical men who have in the past, by their interest and cooperation, made possible the achievements of the State Department of Health shall also take equal interest in this great public health problem, which Dr. Gayle characterizes as the major social problem of modern times.

DR. DAVID C. WILSON, University: Dr. Gayle's paper presents the problem of the mentally sick in excellent fashion. He also includes some constructive suggestions and criticisms of the present care of patients in Virginia and I would like to re-emphasize as well as to criticize some of these that seem pertinent.

First he brings out the small relative cost of the care for a patient in a State Hospital in Virginia showing very definitely that our neighboring States of Maryland and South Carolina spend practically $100 more per year per patient than we do. In comparison between Virginia and Massachusetts it is especially striking, the expenditure at our State Hospitals being 2.3 per cent while that of Massachusetts is from 15 to 20 per cent. Certainly it is time for Virginia to spend more for the mentally sick.

In consideration of the feebleminded problem, he does not give any answer to the fact that 4,500 white feebleminded persons should be institutionalized in this State. Certainly these cannot go to the Colony at Lynchburg and it seems to me that some other plan for their care must be formulated.

I also would like to ask if the proposed Colony for Negroes at Petersburg is supposed to take care of the epileptic as well as the feebleminded and to urge that these two conditions be separated and handled in different institutions. It is my opinion that we have an opportunity to develop a splendid institution for the colored feebleminded but, if the epileptics are also included, then our work will be greatly handicapped.

Let me call attention also to his suggestion that the alcoholics should be handled in a separate institution. Undoubtedly most alcoholics and drug addicts are mentally sick individuals but the care of the great majority of them is distinctly different from that of a patient with a severe mental illness. Under present conditions no great effort can be made for their cure. The psychiatric approach is the only one which offers any hope but this demands close personal attention by skilled individuals. What is necessary, therefore, is not so much a new building or new institution as a numerous staff trained in the care of this type of individual.

Finally Dr. Gayle is to be congratulated on his paper but especially on the great work of the Hospital Board of which he is such an important part. They have gone ahead with great courage and wisdom and have put new life into us all, bringing great joy over the things they have accomplished and high hopes for the future.

THE SYPHILIS PROBLEM IN ROANOKE.*

W. W. S. BUTLER, M.D.,
Roanoke, Virginia.

My internship in Philadelphia was from 1909 to 1911. During this time the first doses of "606" were given in this country in New York and in Philadelphia. It was called the "Therapie Sterilizans Magna". It was Magna all right from the reaction of the initial patients but unfortunately did not turn out to be Sterilizans. About this time the darkfield and Wassermann reaction were coming into use. In the following twenty-five years, our knowledge on this subject has come up to the present high standard based on statistics from 76,000 cases, gathered by the Cooperative Clinical Group, with each case followed for a period of more than five years and studied by the experts of our country. These tables have the accuracy of life insurance statistics and will be freely quoted in the subsequent pages. These are not abstract figures to me; they are real persons since it has been my misfortune to see men go from the insignificant "hair-cut" through a period of inadequate treatment to the horrors of aortitis and of locomotor ataxia.

It is our plan in this discussion to take the number of cases expected annually in Roanoke and compare them with the number which we actually find. The number expected is based on a population of 100,000 in Roanoke and Roanoke County, and, tak-

*Presidential address, Roanoke Academy of Medicine, October 3, 1938.
From the Jefferson Urological Clinic.

ing the figures from the survey in Chicago by Dr. Vonderlehr *et*[1] *al.* last year which gave forty-four per 10,000, we can expect next year 440 new cases of syphilis in our city. In the Chicago survey, covering a period of six months, 99.6 per cent of the physicians cooperated and all available sources of information were gone over, sparing no expense. If the same proportions prevail here as in Chicago, 365 of our 440 new cases will be latent syphilis, and seventy-five will be in the early contagious but curable stages.

We have three methods of making our own estimates. First is by the number of blood tests sent from this community to Richmond. Of 6,156 blood tests from Roanoke city and county, 804 were positive, one-sixth of this number being from the county. To give us this information, the State Health Department went over 103,000 records sent in last year. As nearly as they can ascertain, this represents 600 new cases though they are not divided into early and late. Another method of estimating this would be an actual count of the patients whom we have seen; by this method there have been 260 new cases to report for treatment at our public clinic, plus seventy-three treated by ourselves. This does not include the remaining patients treated by more than 110 physicians which would far exceed the balance needed to make up 440. A third method would be to estimate the number from the percentage found in a group where the Wassermann has been taken. By this method where a routine Wassermann was taken, in 3,020 food handlers, 200 positive Wassermanns were found, which is a percentage of six and seven-tenths. This group represents in the main young adults. In hospital groups composed of the private room classes, we have, over a period of years, a 2.5 per cent average of positive Wassermanns. In our colored hospital last year, of 388 routine Wassermanns taken on admission, fifty-nine, or 15 per cent, were positive. With the above figures before us, it can be stated definitely that 440 per year is a conservative estimate of the number of our cases.

In my twenty-six years' association with you here, I certainly feel that I am one of you and am taking the liberty to state current practices which have come under my observation. There are four points which I want to discuss as mistakes which are being made today and which have been made many times by me. First, our interpretations of the Wassermann test; second, our failure to anticipate nerve and heart complications; third, the little effort which is being made to find and follow up cases; and fourth, is our attitude toward the public.

I. The pamphlet on "The Management of Syphilis" presents clearly the interpretation of the Wassermann test. I recommend that it be read carefully. The false security of a negative blood Wassermann and at times the relative unimportance of a positive Wassermann must be understood. To emphasize the danger of inadequate treatment and the factors of resistance produced by nature and that produced by drugs, the following is quoted in substance:[2] In untreated early syphilis, no treatment gives 30 per cent cures as compared with 18 per cent if inadequately treated, and 83 per cent when adequately treated. When paresis or tabes occur in a treated case, the asymptomatic period averages five and ten years less respectively than in the untreated patient.

To interpret the Wassermann at different stages in the disease it will be necessary to take the six major divisions arranged according to the treatment point of view.

(a) First, we have the period of primary syphilis, an ulcer with a positive darkfield but a negative Wassermann. In the clinic, 2 per cent only of 260 new cases showed a positive darkfield compared with 11 per cent in those taken in the office. This merely means that the more intelligent group comes earlier for this examination. The darkfield, has however, this drawback, the lesion heals so promptly that it is difficult to persuade the patient of the importance of continuing his treatment and the subsequent checks to eliminate the danger of heart and nervous system involvement. A large proportion of neuro-syphilis can only be attributed to a minor sore and frequently to some urethral lesion obscured in a gonorrheal infection years before.

The primary sore was probably entirely overlooked. This mild onset fails to stimulate our natural resistance and leaves the body open to attack in the late degenerative stages of the disease.

(b) In about three weeks following the appearance of the chancre, the Wassermann becomes positive. If our patient does not arrive until this stage, he has lost 20 per cent of his chances of cure.

(c) This is the period when secondary throat and skin lesions appear. There is a slight increase in chances of cure due probably to the natural reaction of the body to disease at this period. At this time, too, we have our maximum period of danger from

the involvement of the nerve and cardiac systems. These are particularly likely to occur from rest periods in treatment. It is our impression that these rest periods are caused to a large extent by the system of charging so much per treatment rather than charging by the month or year, since the former has a tendency to make the patient economize by deciding himself the amount of treatment which he needs rather than leaving this to his physician.

The Wassermann is of its greatest value as a guide in the treatment of the disease during this stage of treatment. The slow gradual drop to negative and remaining so gives the best prognosis. If negative, the routine treatment may be followed out. If positive and remaining persistently positive, the significance is very great. In a series of several hundred[5] Wassermann fast cases, only 6 per cent failed to show lesions somewhere in the body; 48 per cent in the central nervous system, 36 per cent in the cardiovascular system, 32 per cent in the osseous system, with 11 per cent congenital. With these facts in mind, the positive Wassermann found in older people should not be dismissed after a few doses of potassium iodide. The essential thing here is not whether the blood Wassermann reaction continues positive, but what lesion causes it and whether this lesion is in the heart, nervous system or a less vulnerable location.

(d) In the absence of symptoms, we now have about two years of a monotonous treatment carried out according to schedule.

(e) Next is the critical period of two years, during which time we stop treatment, but check by a Wassermann every two months. Ninety-one per cent of infectious relapses will occur during this time. There is an 80 per cent chance of cure. If at the end of this time, an X-ray fails to show involvement of the aorta and a spinal fluid shows no involvement of the nervous system, it is highly improbable that these complications will ever occur.

(f) If your patient should not come to you until after this period, he has no chance of a complete cure. His symptomatic relapse will occur in an equal percentage of cases whether or not the Wassermann is positive. For this reason, the reading of the blood Wassermann is of no value as an index for treatment. Other than in the early late and early congenital, there is no chance of complete cure. Symptomatic cures are attainable in a large per cent with the exception of the advanced aortic lesions.

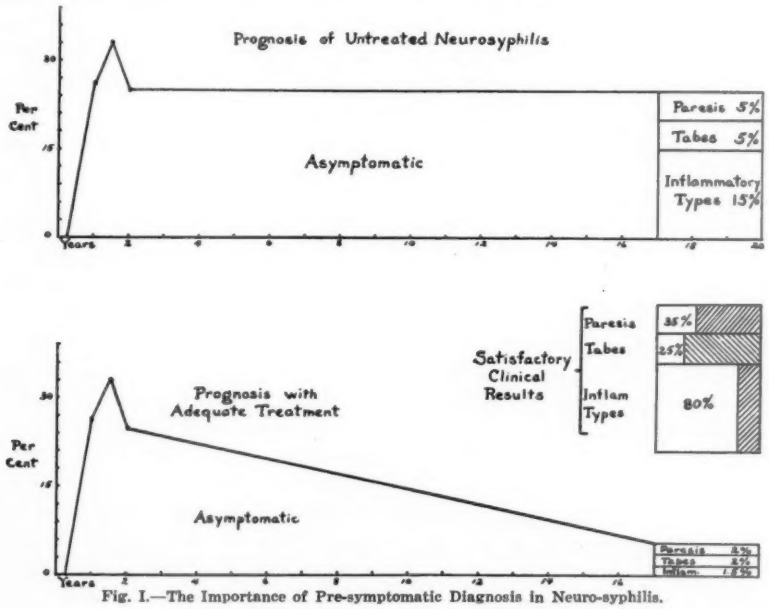

Fig. I.—The Importance of Pre-symptomatic Diagnosis in Neuro-syphilis.

II. The prevention of degenerative changes in the nerve, cardiovascular and congenital types is discussed in a most clear and tangible manner in Moore's "Modern Treatment of Syphilis". The value of pre-symptomatic diagnosis to reduce degenerative changes in the nervous system from the

expected twenty-five to 5 per cent is shown in the illustration.

Figure I shows the results to be expected under the usual treatments and those attained by adequate treatment of syphilis. To super-impose the lower curve on the upper would show the number of cases which can be arrested by early treatment. From 25 per cent of all syphilis which develops neuro-syphilis, this can be reduced to 5 per cent. The 25 per cent is divided into 15 per cent meningo-vascular, 5 per cent locomotor ataxia, and 5 per cent paralytic dementia.

To discuss briefly these terms, the normal course of neuro-syphilis is outlined:[3] Neuro-syphilis is a continuous process involving the nervous system, first as a period of invasion, then an inflammatory, and later as a degenerative process. The first two are far more amenable to treatment. The symptoms parallel the course of the disease; there is first the prodromal or asymptomatic period averaging nineteen years in the untreated, fifteen in the treated. Asymptomatic neuro-syphilis is present in 32 per cent of all syphilis at eighteen months. The next stage is the meningo-vascular, occurring in 15 per cent of all syphilis and characterized by symptoms varying from stiff neck and headache to convulsions and coma. Approximately 80 per cent of these respond to adequate treatment though, if untreated, 30 per cent progress to the degenerative stages. Approximately 5 per cent of all syphilis ends in locomotor ataxia; with adequate treatment, one-third of these may be arrested. Locomotor ataxia rarely causes death directly, though the invalidism due to blindness, gastric crises and ataxia are worse. Paresis, representing the remaining 5 per cent of all syphilis, means a dementia with paralysis and complete inbecility. An interpretation of the groups of spinal fluid and the significance of each is shown in Figure II. This combination table is a key to interpret the types of spinal fluid change. The proportion is indicated which will develop symptoms and the type of symptom they will develop also is shown. Not only this, but the relative chances of preventing them by adequate and by inadequate treatment respectively is shown.

On questioning the directors of the five laboratories here, including the City Health Department, there is no knowledge of more than six routine spinal fluid examinations having been made in the absence of symptoms. Many examinations have been made after symptoms have developed, i.e., after the damage has been done. This is not meant as a criticism; the patients have not been educated to it, and no one seems willing to try to put it over. To emphasize the importance of this examination my associate, Dr. L. C. Spengler, Jr., reports an examination of ninety spinal fluids which he has done, forty-six from the office and forty-four from the public clinic. This small number serves only as a "straw to show the way the wind blows". Five of these presented symptoms and are not included since the point we wish to emphasize is the value of these tests in the pre-symptomatic period. Of the forty-five patients with a persistent positive Wassermann,

ASYMPTOMATIC NEUROSYPHILIS

Group	Spinal fluid abnormalities	Per cent developing symptoms	Per cent			
				Clinical cure	Degenerative	Meningo-vasc.
I	Increased cell count and/or globulin WaR negative Colloidal curve normal	6				
II	Cells may or may not be increased Globulin positive WaR negative and colloidal curve positive or WaR positive with or without a positive colloidal curve	32	Adequate Treatment	95	1.5	4
			Inadequate Treatment	18	7.5	75
III	Cells usually increased Globulin positive WaR positive in all dilutions Colloidal curve paretic	73	Adequate Treatment	70	20	7.5
			Inadequate Treatment	7.5	75	15
Normal	Cell count less than 6 Globulin negative WaR negative Colloidal curve normal	3.6				

Fig. II.—Interpretation of Spinal Fluid Findings[4] In Asymptomatic Neurosyphilis.

62.2 per cent (city 66.7 per cent; office 55.6 per cent) show changes in the spinal fluid and 37.8 per cent (city 44.4 per cent; office 27.8 per cent) showed a positive spinal fluid Wassermann. The high percentage of asymptomatic neuro-syphilis in the persistent Wassermann fast cases shows the importance of this manifestation.

Of the forty whose blood tests had become negative 17.5 per cent (city 24 per cent; office 13.1 per cent) showed minimal spinal fluid changes and none showed more advanced changes.

III. By applying these figures to the key shown as Table II, we can estimate their prospects of future health by current methods and by adequate treatment respectively. In the 1,200 at the public clinic and the far larger number in the city, the proportions will not vary materially.

The right hand side of the table interprets the chances of nerve involvement in those with a persistently positive blood Wassermann as compared with those with a negative blood Wassermann. In the normal spinal fluid column, one-third have posi-

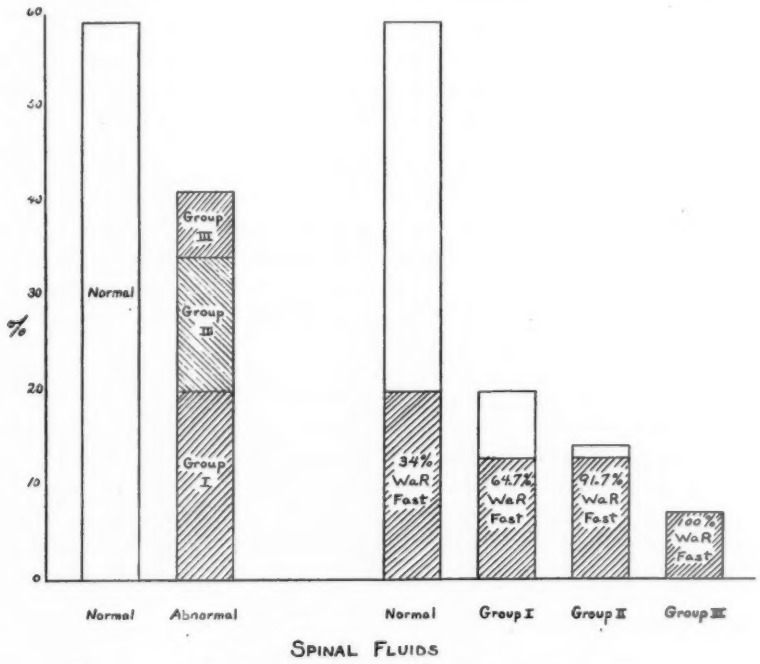

Fig. III.—Routine Spinal Fluid Examinations.

Columns 1 and 2 show the percentage of each group found in 90 cases. Columns 4 to 6 show the percentage of fixed positive blood Wassermanns in each group of spinal fluid.

We find then, 41 per cent (city 50 per cent; office 37.2 per cent) asymptomatic neuro-syphilis in our total cases at the stage at which they usually stop treatment. Apply this percentage to the 1,200 treated in our public clinic last year, and we have 494 neuro-syphilis cases unrecognized. This is not meant as a criticism. One man in a few hours per week cannot adequately treat 1,200 syphilitic patients a year.

Figure III shows 59 per cent normal spinal fluids to 41 per cent abnormal spinal fluids in patients presenting no symptoms. Of the latter, 20 per cent are group I, 14 per cent group II and 7 per cent group

tive blood Wassermanns; group I spinal fluid tests shows two-thirds Wassermann fast, group II shows nine-tenths Wassermann fast, and group III shows one hundred per cent Wassermann fast. The opposite is not true, however; a negative blood does not necessarily mean a negative group III spinal fluid. There are two cases of symptomatic neuro-syphilis with positive spinal Wassermanns and negative blood Wassermann tests in this series of ninety examinations.

The modern treatment of syphilis does not stop entirely with the prevention of late neuro-syphilis. Remarkable results have been attained even after

degenerative symptoms have appeared. Moore states that in paresis, patients receiving no treatment will have complete remissions in 4 per cent, and 80 per cent will die in four years from the onset. Of those receiving the routine drug treatment there are the same proportion of complete remissions but 65 per cent deaths in four years. With the modern fever therapy plus drug treatment, 35 per cent have complete remissions and only 7 per cent die in four years.[7] Almost as good results are being reported in primary optic atrophy.[5]

Ann Arbor, of those with late syphilis, 80 per cent showed aortitis.

These two observations, in which only 10 per cent out of 80 per cent were recognized, show the difficulty of its early recognition.

(c) Of 1,936 late cases who had received routine treatment early and were followed by the Cooperative Clinical Group, only thirty-one developed cardio-vascular disease.

This finding, corroborated by a number of observers, demonstrates that no cardio-vascular syphi-

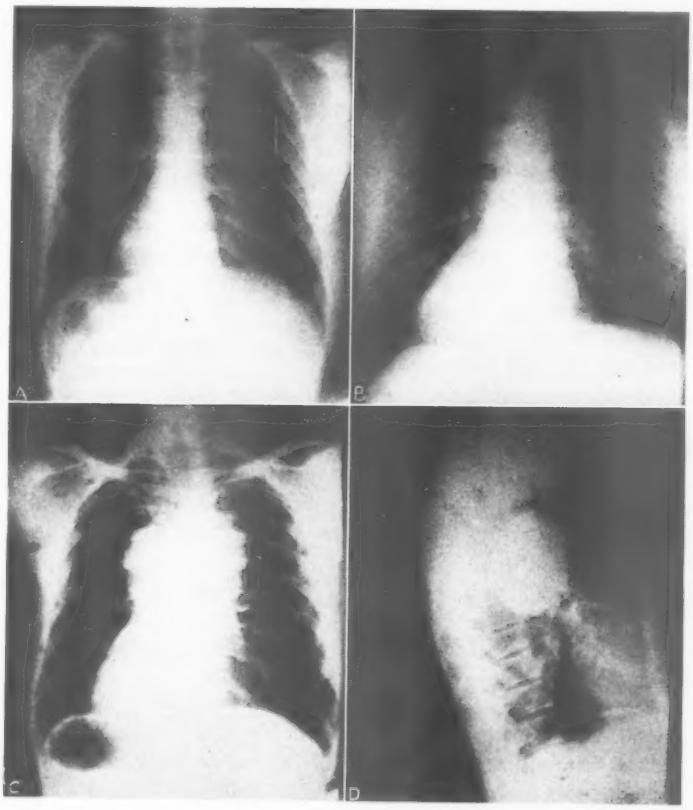

Fig. IV. a. Normal heart and aorta. b. Syphilitic heart with aortitis. c. and d. Antero-posterior and lateral view of aortic aneurysm.

Cardio-vascular syphilis unfortunately does not present a label so easily read as the spinal fluid in neuro-syphilis. Three significant observations are quoted:[6]

(a) Of 6,000 late cases, 10 per cent showed clinical evidence of this complication.

(b) In a large autopsy series both in Berlin and

lis develops in a patient receiving adequate early treatment. A fixed Wassermann reaction is present in 50 per cent of cardio-vascular disease.

Dr. D. C. Smith, at the University of Virginia, is now having routine X-ray examinations of the heart made in all of his cases and his findings will be most interesting. We have been able to obtain X-ray pic-

tures in only nine of our late syphilis cases. One of these who had a Wassermann fast blood showed an aortitis. Two others presented symptoms but are shown in Figure IV as illustrative of what may be expected.

Space does not permit a discussion of prenatal and congenital syphilis. The substance is that if a Wassermann is taken and treatment begun in the first half of pregnancy, there would be no congenital syphilis. We feel that if a child is born with congenital syphilis and the physician has failed to make a Wassermann on the pregnant mother he should be liable to a suit for negligence. We call attention to a Bill signed March 18, 1938, by Governor Lehman of New York, requiring every pregnant woman to have a standard serologic test for syphilis. The birth certificate must carry a statement that such a test has been made, or, if it has not been made, the reason for such failure to make it must be given. The results of the test are not recorded on the certificate, however. It is estimated that in this one State, 13,000 babies will be saved from death or disease every year. There are 4,000 children born with syphilis in New York State every year and 18,000 still-births. It is believed that half of the still-born infants could be saved and all of the 4,000 syphilitic infections could be prevented if a diagnosis were made early in the mothers and they were given adequate treatment. Roanoke had forty-nine still-births and twenty congenital cases in 1937. The congenital cases were included among the two hundred and sixty reported at the public clinic in 1937.

III. (a) We come to our third heading of "case finding and follow-ups". For finding sources of infection in the early cases, the physician has the inside track. A trained social worker, however, will have to seek out the contacts. They may run from two or three to a dozen or more from a single case. If these are sought out we would not have the small proportion of only 2 per cent positive darkfields in the early cases. A chart should be kept showing the source of each infection as in any other epidemic disease, and should be worked out by a person with plenty of time and enthusiasm, and cannot even be attempted as a side-line. We have here a minimum of 440 new cases per year of which 75 are recent acute infections and, to get our total number of cases, this should be multiplied by not less than ten. No adequate data are available on this point. We feel that in a disease this extensive, we should have a full-time man to conduct the clinic and this follow-up work. If it is not practical at present, it seems the State may furnish us a man for a year or more to educate both the physicians and the public in this important but neglected angle of our work.

(b) Our next method of case finding is the location of the late cases. A routine Wassermann on all new members, at every establishment, would gradually accomplish this. Our Health Department found, on making a routine examination on 3,020 food handlers, that 200 showed a positive Wassermann, that is 6.5 per cent in this adult industrial group. We have in our city, the following industrial plants employing 17,248 men. We hope to secure routine Wassermann tests on all of their employees along with the routine physical examinations.

There were in our city during 1937 at:

The Viscose	4,700
N. & W.	6,513
Va. Bridge	890
Johnson-Carper	430
Roanoke Weaving	356
Roanoke Mills, Inc.	272
Food Handlers Group	3,120
Units employing 100-200	1,000

(These are Harris Hardwood, Walker Foundry, Leas & McVitty, Comas Cig. Mfg. Co., Neuhoff, Stone Printing Co., and the *Times-World*.)

Of this 17,248 wage earners, we expect 6.5 per cent positive Wassermanns or approximately 1,131 positive Wassermanns to be found. This assumes that the percentage is the same among all groups. We believe 1,000 would be a conservative estimate.

Of this 1,000 persons with syphilis, 25 per cent or 250 will eventually develop neuro-syphilis. This 250, by adequate treatment, could be reduced to fifty. Adequate treatment includes a spinal fluid test to see which ones now have asymptomatic neuro-syphilis.

To present actual numbers seems a bit fantastic. These results or better will come in our day. Something will be accomplished gradually by its educational value which will lead to a far higher standard of treatment in the earlier cases.

IV. In regard to our fourth heading of the "Attitude of the Physician" which is really the source of information to the public, we feel that an informed public is an essential for two reasons: first, to secure necessary funds to treat the large number of indigents affected by this condition, and, second, to secure the cooperation of our own patients in carrying out their treatments. To secure and deserve the confidence of the public, we should have an approximately uni-

form method of treatment, and for this, the recent pamphlet on "Management of Syphilis", sent us by the State Health Department, should be a basis. This book represents the latest and most accurate information compiled by the United States Public Health Service for our use. It contains all necessary information for the treatment of early syphilis.

I feel that it is our responsibility to cooperate in every way with the Public Health Service and not, by a few words of disparagement, to counteract their work in sources where we may have a great deal of influence. Our tendency is to under-estimate our own importance in the education of the public in matters of this type.

We are grateful to the Roanoke Health Department and to the public clinic for their help to us in securing information as to the number of cases and supplying the forty-four cases necessary for spinal fluid tests in the clinic. We also appreciate the cooperation of the State Health Department which went over 103,000 Wassermann reports done in 1937 to give us the necessary 6,000 which came from Roanoke and Roanoke County; also to my associate, Dr. L. C. Spengler, Jr., who has aided me in compiling this information, in preparing the slides, and who has done and examined the ninety spinal fluids.

To make a résumé of the above statements, syphilis should be treated by schedule with a laboratory control through blood and spinal fluid tests. Complications must be arrested or prevented by early recognition. Our offices and clinics should not be "Arsphenamine filling stations" at so much per shot. To treat all alike is to overlook the 20 per cent which may be saved by adequate treatment. This does not include the heart and congenital cases to be eliminated by adequate, early treatment and an efficient case finding organization.

The key to success is an interested and informed medical group with the cooperation of trained social workers.

The United States Public Health Service has arranged points at which intensive courses in training in syphilis treatment and prevention are taught. Dr. T. B. Turner, of Johns Hopkins, states that from six months to one year is essential for this training. It is apparently not practical to have a full-time man here trained in this manner at present. We feel that if the State should furnish such a man for a year, with some additions to our present organization, this work could be carried on.

We feel that the 1,200 cases under treatment in our public clinic in 1937 are entirely too much for one man to handle in a few hours each week. To render them non-contagious is not enough. To give them individual diagnosis and proper treatment requires the work of a full-time trained man. The further heat therapy which will be necessary in many of the advanced nerve cases could be handled by an arrangement with the University of Virginia or our State asylums. It should not be necessary that these should be advanced cases; it should be available to the early cases when a diagnosis has been made.

To those of us satisfied with our present status, we suggest a visit to the Veterans Facility here, which has 140 out of 670 inmates of this institution there as a result of this disease. We also call attention to the annual attack rate per 100,000 in 1935 as compared with other countries, which shows the following:

United States	796 cases
Great Britain	47 cases
Denmark	20 cases
Sweden	7 cases

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Medical Arts Building.

DISCUSSION

DR. OTIS L. ANDERSON, Director, Division of Venereal Disease Control, Virginia State Department of Health: I have thoroughly enjoyed Dr. Butler's paper and wish to compliment him on a very excellent and comprehensive presentation.

The expectancy of 440 new cases of syphilis in Roanoke City and County next year, as stated by Dr. Butler, I believe is definitely conservative. A further consideration of the material presented by Vonderlehr *et al.* in the Chicago study reveals a somewhat higher prevalence rate when the distribution of white and colored population is evaluated.

The Chicago study included a population group in which only 7 per cent were colored. Therefore, in computing the prevalence of syphilis in a southern city and county with a colored population of about 15 per cent, this racial distribution of the disease will have to be com-

puted separately to arrive at the true expectancy. The small group of 7 per cent colored in the Chicago study was found to have a rate eight and one-half times greater than the white race. If we apply the color specific rates of the Chicago study (white 28 per 10,000 and Negro 237 per 10,000) to the white and colored population of Roanoke City and County we would obtain 642 cases as the total expectancy for the year, divided into 256 white and 386 colored.

A recent survey of a representative city in Virginia revealed an annual rate of 59 new cases of syphilis per 10,000 white population and 287 new cases per 10,000 colored population. Applying these rates to the two races in Roanoke City and County, a total expectancy of 1,007 new cases of syphilis would occur next year. These are divided into 539 white and 468 colored.

The emphasis on the prevention and management of neurosyphilis and cardiovascular syphilis is indeed timely. According to studies made by the Cooperative Clinical Group, the approximate chance of development of late syphilis when early syphilis is untreated is: cardiovascular 45 per cent and neurosyphilis 25 per cent. If treatment is administered early and adequately, the chance of developing cardiovascular syphilis is reduced to 4 per cent and neurosyphilis to 6 per cent.

I agree whole-heartedly with Dr. Butler in the statement that too few spinal punctures are made. It should be a routine procedure before beginning treatment in a case of latent or late syphilis, as well as at the time of discharge when treatment has been completed. A persistently positive serologic test in early syphilis, after six months of continuous therapy, is strong presumptive evidence of neurological involvement and is an indication for spinal fluid study. If spinal fluids were studied in the above manner, many cases of asymptomatic neurosyphilis would be found in time to avoid the late crippling manifestations of tabes, paresis, etc., and in those whose fluid shows more extensive invasion, progression may be arrested in time to prevent, or at least ameliorate, the late manifestations of the disease.

THE TREATMENT OF BENIGN RECTAL STRICTURE (LYMPHOGRANULOMA VENEREUM).*

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Richmond, Virginia.

Many articles have appeared in the medical literature during the past decade on the subject of lymphogranuloma venereum and its relationship to benign rectal strictures. Prior to the introduction of Frei's[1] intracutaneous test in 1925, non-malignant and non-traumatic strictures of the rectum were thought to be due to syphilis, tuberculosis or gonorrhea. This explanation was accepted not because these diseases could often be demonstrated but because rectal stricture occurred most frequently in colored women and their vulnerability to these conditions was traditional. Every dispensary in the South had its quota of unfortunates who returned at irregular intervals for rectal dilatation.

TERMINOLOGY

The introduction of the Frei test showed that the large majority of these strictures were caused by lymphogranuloma venereum. This condition, when applied to both sexes, has been variously called lymphogranulomatosis inguinalis, subacute adenitis with purulent intraganglion, non-tuberculous granulomatous lymphadenitis, hypertrophic bubo, tropical bubo, strumous bubo, climatic bubo, pestis ambulans, Nicolas-Favres disease, fourth venereal disease and sixth venereal disease.[2]

INCIDENCE

This condition was formerly thought to be a tropical and semi-tropical disease but in recent years cases have been reported from all parts of the world. Males appear to be affected slightly more often than females. This difference may be more apparent than real due to the superficial lymph drainage of the initial lesion in the male.

PATHOLOGY

Lymphogranuloma venereum is caused by an ultramicroscopic virus which is transmitted during coitus. After an incubation period of one week a transient, painless ulceration appears on the genitals. Several weeks later the lymph nodes draining the initial lesion become edematous and the lymphoid tissue undergoes hyperplasia with fibrosis and abscess formation. The lymph nodes involved necessarily vary with the sex of the patient and the location of the primary lesion.

Lee and Staley,[3] in their well illustrated article, briefly review the lymphatic drainage of the external genitals, as follows:

*Read before the sixty-ninth annual session of the Medical Society of Virginia, at Danville, October 4-6, 1938.
†From the Department of Surgery, Medical College of Virginia, Richmond, Va.

(In the male)—"The glans penis and prepuce drain primarily to the inguinal lymph nodes. These have connection with the iliac nodes above. An occasional lymph-vessel leads directly through the femoral canal and abdominal muscles from the glans penis and prepuce to the iliac and hypogastric lymph nodes. A number of anastomoses are present between the lymph vessels of the glans penis and prepuce and the skin of the scrotum and there is a rare direct connection with the anal region. The skin of the scrotum drains chiefly to the inguinal nodes. The abundant connections of the skin of the scrotum with the anal region are of great importance as this connects indirectly the penis and the cutaneous lymphatic network of the anus."

(In the female)—"The clitoris and vulva drain principally to the inguinal nodes. As in the male, direct trunks lead to the iliac and hypogastric nodes. The lymphatics of the posterior portion of the vulva have extensive connections with the cutaneous lymphatic network of the anus. In both sexes many communications exist between this anal network of lymphatics and Gerota's nodes at the ano-rectal junction. The cutaneous and lymphatic network is approximately two centimeters within the anal orifice and Gerota's nodes are four centimeters higher. The connections between the lymphatic vessels of the posterior vaginal wall and the anus are quite free. The lower third of the vagina drains chiefly to the iliac and hypogastric nodes. Anastomoses with the vulva are also present. The middle and upper thirds of the vagina drain to the iliac and hypogastric nodes, and the uterus to the preaortic, utero-vaginal, superior, hemorrhoidal and sacral lymph nodes."

The foregoing description explains the frequency of inguinal bubo and the comparative rarity of rectal stricture in the male and the high incidence of rectal stricture and relative freedom from inguinal bubo in the female.

In the female the rectal wall, drained by the involved peri-rectal lymph nodes, becomes edematous and secondarily infected. A proctitis develops and a superficial ulceration of the lower rectum is a rather constant early finding. After several months or years a fibrosis of the surrounding lymph nodes and peri-rectal tissues occurs and a stricture results. Peri-rectal abscesses, rectal fistulae and hemorrhoids are frequent complications.

The systemic effects of lymphogranuloma venereum are often striking. Abdominal pain, an irregular fever and marked weakness usually occur early in the condition. A severe secondary anemia frequently develops. As the condition progresses, amyloid changes in the kidney and various degrees of cardio-vascular-renal disease are prone to develop.

Several patients in our series have shown mental symptoms. These patients deteriorate rapidly and many are semi-invalids before the onset of obstructive symptoms bring them to the hospital.

TREATMENT

The treatment of rectal strictures has been generally unsatisfactory. Numerous remedies have been suggested but none has proved specific. Antimony and potassium tartrate and fuadin have been widely used but with little success. Foreign protein, Frei antigen intravenously, tuberculin, copper ammonium sulphate and sulfanilamide have been given. X-ray, diathermy, Elliott therapy and carbon dioxid snow have been used locally. Operative procedures have varied from simple dilatation of the stricture to abdomino-perineal resections. The formation of a colostomy early in the disease followed by digital dilatations has gained increasing favor during the past few years.

Dilatation of the stricture in lymphogranuloma venereum is a hazardous procedure for the fibrous band frequently tears and if the rent occurs in the anterior rectal wall a generalized peritonitis results. The majority of these strictures are situated from three to eight centimeters from the anus. In the female the cul-de-sac of Douglas is only 5.5 cm. from the anal orifice. Any stricture in the female that requires the introduction of the index finger past the second joint in order to reach its upper limit is potentially dangerous. Every large series of rectal strictures has included fatalities from this cause and we recently had a death four days after gentle dilatation of the rectum and removal of biopsy. Peritonitis may follow dilatations in which the rectal wall is not torn. Death in these cases is the result of infection being massaged through a diseased rectal wall or rupture of an abscess into the free peritoneal cavity. Occasional spontaneous perforations of the rectum have been reported in this condition. In order to obviate these dangers in recent cases we have combined a colostomy with a chemical and mechanical obliteration of the cul-de-sac.

The method superficially resembles the Moschcowitz[4] procedure for rectal prolapse but the pur-

pose of the operation and the technic are entirely different.

In brief, the method is as follows: Under spinal anesthesia and with the patient in marked Trendelenberg position a left paramedian incision is made. Diseased tubes and ovaries are removed. The intestines and parietal peritoneum are protected with moist sheets. The peritoneum lining the cul-de-sac is painted with one-half strength tincture of iodine. Care is taken that the iodine comes in contact only with the area that will be covered by subsequent sutures. The cul-de-sac is then obliterated by purse string sutures of chromic catgut that include the lateral wall of the rectum and the parietal peritoneum of the pouch of Douglas. The sutures are tied in pairs to prevent distortion of the rectum. A final continuous suture approximates the posterior surface of the broad ligaments to the posterior parietal peritoneum and the anterior wall of the sigmoid. Care is taken in suturing to avoid the tubes, ovaries, ureters and pelvic vessels. A double-barrelled colostomy is made through a left McBurney incision. The loop of sigmoid is supported on a glass rod passed through the mesentery and the bowel is opened later with the cautery. This may remain as a permanent colostomy or the continuity of the bowel may be restored extraperitoneally at a later time.

The infection diminishes after diversion of the fecal current and the proctitis disappears. The stricture softens and responds to dilatation. The danger of peritonitis is obviated and, if desired, further local operative procedures may be carried out through the rectum with safety. Cases have been reported in which the stricture recurred after closure of the colostomy and restoration of the continuity of the bowel. We have not closed any of these colostomies and do not know if the stricture will recur but we feel that the safety afforded by obliteration of the cul-de-sac has justified its use should no further benefit result.

The pre-operative care of these patients is important. On admission a rectal examination is made to determine the location of the stricture and the degree of stenosis. If the stricture is within the danger zone and does not permit the free passage of the index finger, further local procedures are deferred until they can be carried out under direct vision. A Frei test and formalgel determination are made. A biopsy is taken to rule out possible associated carcinoma. A high caloric, low residue diet is given with mineral oil. Blood transfusions are given if the hemoglobin is below 60 per cent. Hot rectal irrigations cleanse the rectum and potassium iodide by mouth allays the discomfort.

All cases with definite rectal strictures are operated upon as soon as their condition permits. If the proctitis is severe and the Frei test is positive we now feel that a colostomy with obliteration of the cul-de-sac is indicated before an actual stricture has formed.

Following operation hot rectal irrigations are given by inserting the enema tip into the lower stoma of the colostomy and the patient is directed to continue this after her return home. The stricture is dilated in the out-patient department at frequent and regular intervals. These patients return for dilatations with surprising regularity following operation. This is due in part to the relative painlessness of dilatations after a colostomy has been established and also to the desire of the patient to facilitate her recovery in order that the colostomy may be closed.

Ten patients have received this operative treatment during the past eighteen months. No patients have died and all have been benefited by this procedure. They are now being followed in the out-patient department and I hope to be able to report on their ultimate result at a later time.

CONCLUSIONS

1. The majority of non-traumatic and non-malignant rectal strictures are the late results of lymphogranuloma venereum.

2. The treatment of this condition has been generally unsatisfactory.

3. A new operative treatment has been described which has given encouraging results in our hands.

This method, in brief, is the formation of a double-barrelled colostomy and a chemical and mechanical obliteration of the cul-de-sac. The colostomy aids by diverting the fecal current and promotes healing of the diseased segment of bowel and obliteration of the cul-de-sac permits dilatation of the stricture or other local procedures without danger of peritonitis.

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DISCUSSION

DR. HENRY LEE, Roanoke: My experience with different types of therapy in non-malignant strictures of the rectum has been most disheartening. A permanent colostomy alone gives little relief and serums proved entirely unsatisfactory. I have nothing to add to this paper but that this is apparently an excellent solution, and the only one with which I am acquainted that has very much promise.

DR. J. SHELTON HORSLEY, Richmond: I am very much interested in Dr. Warthen's method. I never had occasion to adopt it myself—I don't get many cases of this kind—but I am sure if I did, I would try to carry out Dr. Warthen's procedure.

The thing that impresses me particularly is that it is based on good physiological and pathological grounds, and there isn't any operation of the gastro-intestinal tract which should not be based on these grounds,—first of all, by giving rest to the diseased tissue by colostomy, and, second, preventing infection from spreading. Any tissue that is inflamed stands trauma very poorly. Recognizing these two facts, obliterating the cul-de-sac so as to prevent the spread of infection by rupturing into the peritoneal cavity, and giving rest to the tissue by a colostomy, strikes me as being very valuable, particularly for this type of operation.

DR. REUBEN F. SIMMS, Richmond: I want to congratulate Dr. Warthen for bringing this subject to our attention. From every State in the United States cases of lymphogranuloma have been reported. Unfortunately, it has gotten into literature as lymphogranuloma inguinale; I think Dr. Warthen's term is a much better term.

Following his operative procedure, I would suggest the use of tartar emetic and vaccine, because we can't tell just how far up his pathology extended, and there have been cases where colostomies were performed, only to find stricture at a higher point or to develop at a later date. Tartar emetic and vaccine treatment, I believe, would help to rule out this possibility.

DR. R. A. NICHOLS, JR., Richmond: This condition has had a great deal of interest to me for a long while. I think Dr. Horsley brought out an interesting point—that in his private work he sees very few of these cases. In my practice, I have had one case of lymphogranuloma venereum, but have seen numerous cases in clinic work. Whether or not that condition accompanies poor hygienic habits, or filth, remains to be proved, but it does seem to fall in that category.

The experience I have gained with the antimony preparations and iodides, that were strongly recommended, has placed them in the same category as the usual variety of hair tonics, and I have never seen any very gratifying results from their use, and I think this paper is extremely timely for that reason.

These individuals are sick; their condition is extremely chronic, as most pathologists send us back a report of granulomatous tissues, which may not mean anything definite. I think there is little chance to cure by any means less radical than this, and I think a good deal of publicity of a safe procedure—regardless of how radical—by which these individuals could live with a degree of comfort, would be a great thing for humanity.

DR. ARTHUR S. BRINKLEY, Richmond: I want to compliment Dr. Warthen on what looks to be really a panacea for this condition. I remember distinctly when on the service of the late Dr. Willis at St. Philip's Hospital we used to have quite a number of these cases coming in. I recall three cases in which dilatations had been attempted; peritonitis set in, and two out of the three died. It looks like Dr. Warthen has the solution to this proposition. If we could get these cases early and do a colostomy, I believe we could cure more of them.

In all of the cases we had, there was almost total obstruction, and a colostomy was performed first, and then resection. There is so much fibrous tissue in this disease that I am a little doubtful as to whether we are going to cure all of them or not—that is, whether they will ever return to normal. If we could get them earlier, perhaps we could, but the average clinic case does not present himself for surgery until there is almost total obstruction of the bowel.

I want to thank Dr. Warthen again for his presentation.

DR. WARTHEN, closing the discussion: Dr. Simms mentioned the use of tartar emetic and vaccine. We used fuadin and tartar emetic before we started the present operative treatment, and continued to use it for some time. Our results from medication alone were not encouraging, and we have about given up both those remedies. Maybe we have not given them a fair test, but we could not see any results from their use.

There is another thing I would like to bring out, in connection with Dr. Simms' discussion. We have seen two cases in which the granulomatous process more or less filled the pelvis, and involved all of the small bowel in the pelvis. The intestines were plastered together with old adhesions, but in neither case had a stricture appeared in the small bowel. We have fibrosis surrounding the rectum because of the encircling lymphatics, but in the small bowel it does not behave the same way.

Dr. Brinkley expressed doubt as to whether these patients will ever have a total return to normal, and I agree with him heartily. This is a preliminary report; whether these patients will ever have a normal rectum is problematic. I hope later to be able to tell you what happened to these patients. But I do believe that the safety from peritonitis that this procedure affords, plus the opportunity for dilatation and the use of heat, makes this operation worth while.

In closing, I want to thank Drs. Lee, Horsley, Simms, Nichols, and Brinkley for their very considerate discussion.

SULFANILAMIDE, WITH REPORT OF THE TREATMENT OF A CASE OF PUERPERAL SEPTICEMIA.*

ALEXANDER F. ROBERTSON, JR., M.D.,
Staunton, Virginia.

Probably the most outstanding medical achievement of recent years has been the development of sulfanilamide and its use in the treatment of hemolytic streptococcic infections and more recently of other infections.

Sulfanilamide was first prepared in 1932 by Meitzch and Klarer.[1] In 1935 Domagk demonstrated its bacteriostatic effect upon streptococcic infections in mice. Satisfactory results in the treatment of human puerperal infection were reported in 1936 by Colebrook and Kenny.[1] However, it was not until the convincing report of Long and Bliss,[2] of Johns Hopkins, in November, 1937, before the Southern Medical Association, giving a summary of the dramatic results achieved in the treatment of streptococcic infections in humans, that the interest of the medical profession was aroused.

In severe infections an initial dose of eighty grains of sulfanilamide in twenty-four hours is usually sufficient. The drug should be given at four-hour intervals day and night. After two days the dosage may be reduced to sixty grains for the next two days, then to forty grains, depending upon the clinical course, toxic symptoms, etc. If it is necessary to use the drug hypodermically, prontosil solution may be used in dosage of about 100 c.c. the first day (1 c.c. per lb. up to 100 lbs.), and then reduced to half this amount.

If blood sulfanilamide determinations are available it is desirable to have a blood concentration of 10 mgms. per 100 c.c. of blood in severe infections and 4 to 7 mgms. in mild infections.

While in the average case sulfanilamide is well borne, a number of toxic reactions[3] have been reported. These include acute hemolytic anemia, agranulocytosis, optic neuritis and a number of skin eruptions.

Mild toxic symptoms are general malaise, headache, anorexia, vertigo, tinnitus, and nausea.

Moderate toxic effects are cyanosis, numbness or tingling of the hands and feet, skin rashes, abdominal pain, diarrhea, fever, acidosis, and intoxication.

Severe toxic symptoms may be collapse, fever, and rapid pulse, leucopenia or agranulocytosis, hemolytic crisis, and jaundice. Mild effects may be disregarded. Moderate toxic effects should lead to reduction in dosage. Severe toxic effects demand an immediate withdrawal of the drug, forcing of fluids, and sometimes transfusions.

To avoid toxic effects the drug should be used only under the careful supervision of a physician. No saline cathartics or sulphates should be used while giving sulfanilamide. Ten grains of sodium bicarbonate should be given with each dose to guard against acidosis. The blood should be examined frequently to determine the presence of leucopenia or anemia. Toxic symptoms should be looked for and appropriate treatment instituted promptly.

The following case is reported on account of the dramatic recovery of an apparently moribund patient:

A white female, aged thirty-one, was admitted to the King's Daughters' Hospital March 23, 1938. She gave a history of inflammatory rheumatism in childhood, followed by heart trouble. One month before admission to the hospital she had a long drawn out labor, followed by headache, generalized muscular pain, chills, fever and a vaginal discharge with a disagreeable odor.

Physical examination showed a critically ill patient with waxen pallor, clammy skin, rapid, shallow respirations and no perceptible radial pulse. Temperature 102.4. The heart was enlarged, the apex being 12 cm. from the midsternum in the sixth intercostal space. There was a loud systolic murmur heard all over the precordium. The heart tones were very poor. The blood pressure was 78/60.

The liver was enlarged two fingers' breadth below the costal border and there was tenderness and rigidity in both lower quadrants of the abdomen. There was a slight bloody vaginal discharge with a disagreeable odor. Physical examination was otherwise negative. Blood examination showed red blood cells 2,600,000; hemoglobin 50 per cent; leukocytes 14,200, with a shift to the left on differential count. Wasserman negative. Blood culture non-hemolytic streptococci.

*Read before the Medical Association of the Valley of Virginia, May 26, 1938, at Harrisonburg, Va.

The day after admission the patient was started on sulfanilamide fifteen grains every four hours. After receiving seventy-five grains she became cyanotic, tired, and developed labored respirations and a weak irregular pulse. The dose of sulfanilamide was reduced to ten grains every four hours and she was given a transfusion of 300 c.c. of citrated blood. She had an immediate severe reaction, became irrational, and for several hours death appeared imminent. The next morning after a very restless night, active nausea occurred and sulfanilamide was discontinued. She was given 10 c.c. doses of prontosil intramuscularly every four hours for the next four days. By this time she was very much improved and was put back on sulfanilamide, seven and one-half grains every four hours. The following day her temperature was normal. Sulfanilamide, five grains every four hours, was given for two more days and then discontinued. Blood cultures March 28, 31, and April 11 were sterile. An elevation of temperature on April 11 was due to the unexpected development of chicken-pox to which she had been exposed before admission to the hospital.

The patient was finally discharged after thirty-eight days in the hospital. Her abdominal tenderness had cleared up and her general condition was fairly good.

COMMENT

Judging from the clinical symptoms of this case and the recovery after sulfanilamide therapy it is probable that the causative organism was a hemolytic streptococcus. The absence of additional positive blood cultures prevented further study of this point. This patient was seen by a number of consultants and for a period of about a week she appeared in extremis. The one transfusion of blood which she received was nearly fatal and apparently retarded her response to sulfanilamide. Her heart lesion, with decompensation, added gravity to her puerperal infection and made her recovery more noteworthy.

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DIVERTICULITIS OF THE CECUM—WITH CASE REPORT.*

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Diverticula may be noted at all points along the intestinal tract from the pharyngo-esophageal junction to and including the rectum. Diverticula may also be found in the bladder, the urethra, the ureter, and the biliary and pancreatic ducts though these are far less common than those of the alimentary canal itself. Such out-pouchings are far more frequently found in the colon and particularly in the sigmoid portion of the colon. Rankin and Grimes state that approximately 5 per cent of all the colon X-rays made for symptoms show the presence of sacculations in some portions of the large bowel.

In 1849 Cruvilhier adequately described diverticula of the colon.

The terms "chronic adhesive peritonitis" and "peri-diverticulitis", introduced by Virchow in 1853, marked the begining of pathological studies.

Edwin Beer in 1904 offered a very comprehensive consideration of the etiology and pathology. The first record of operative cases was made three years later by Wilson, Griffin and W. J. Mayo. Since that time the literature regarding this subject has become quite voluminous, and the importance of the condition in any differential diagnosis of abdominal symptoms has become increasingly apparent. Moreover, clinical and pathological considerations, formerly not even considered, are becoming daily of more apparent clinical importance.

The frequency of the occurrence of diverticula in various localities is given by Rosedale as in the following order: (1) colon, (2) Meckel's diverticulum, (3) duodenum, (4) pharynx, (5) esophagus, (6) stomach, and rarest of all in the jejunum.

On the contrary, Vernon C. David declares from the review of the literature that the most commonly

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observed sites are in the upper and middle portion of the esophagus, the duodenum, the jejunum (Meckel's diverticulum), the colon and the bladder. The most unusual sites, according to him, are the larynx, the lower end of the esophagus, the stomach, the ileum, the ureter, the urethra, and the biliary and pancreatic ducts.

Apparently the most satisfactory classification of diverticula is that based on their origin, into the congenital and acquired types, because so-called true diverticula containing all of the layers of the structure from which they take origin may be either congenital or acquired and may eventually change into so-called false diverticula. In the latter instance, the herniating mucosa and sub-mucosa is the most conspicuous structure present in the false diverticulum.

From the first description to the present, various suggestions have been made relative to the etiology. These theories vary from muscle weakness, neuromuscular dysfunction, increased intracolonic pressure, potential weak spot in the intestines at the site of the entrance of the blood vessels, and vascular, stasis, to the degenerative changes of senility.

None of these theories has proved entirely adequate. The two outstanding etiological factors from the clinical standpoint seem to be age and constipation. The vast majority of cases appear in patients beyond forty years of age and patients almost invariably give a history suggestive of a sluggish colon.

Clinical considerations demand that the possibility of disease of a Meckel's diverticulum be considered in the differential diagnosis.

The term diverticulosis connotes the presence of sacculations from the intestinal wall, while diverticulitis implies the varying changes which occur as a result of irritation and inflammation; and since it is only as a result of the clinical symptoms caused by these last-named processes that the patient usually seeks medical aid, it is only with diverticulitis that we are particularly concerned.

The large bowel, it seems generally agreed, is more frequently the site of diverticula than is any other structure in the body, and it is with this large group of cases that this paper proposes particularly to deal.

Contrary to the lack of uniformity of opinion regarding the etiology of diverticula of the colon and of the rest of the alimentary tract in general, it is to be noted that the most commonly observed diverticulum of the ileum is the persistent intra-abdominal vitelline duct which was first accurately described by Johann Friedrich Meckel and comes down to us as the familiar Meckel's diverticulum. Here the etiology is definite. The vitelline duct connects the yolk sac with the mid gut and normally becomes obliterated in the seventh or eighth week of fetal life. The atrophy begins at the distal end and progresses until the bowel lumen is reached. Complete failure of obliteration will leave a double connection with the ileum at one end and with the umbilicus at the other from the latter of which feces will discharge. Obliteration at both ends will leave a double connection by a fibrous cord either to the umbilicus or to the bowel. Such a remnant may give rise to tumors of various types. Cysts, carcinoma, sarcoma and malignant myoma have been reported. Obliteration at the distal end leaves a tube of varying length connected with the ileum and connecting with its cavity. It may be found at any point of the small intestine below the duodenum, the usual location being from ten to twenty inches above the ileo-cecal opening. Its usual attachment is ante-mesenteric, and its length varies from a small protrusion to one (reported by Moll) thirty-three and one-half inches long.

Its distal end may be free or attached by a fibrous band to the umbilicus, mesentery or adjacent organ. In shape, it is spherical, conical, bulbous, or somewhat like the finger of a glove. Its walls consist of the known coats of the ileum, possessing at times Lieberkuhn's follicles, Peyer's patches, gastric mucosa and even accessory pancreatic tissue. Its incidence, as estimated from autopsy statistics, varies from 1 to 4 per cent in different series of cases.

This interesting remnant is responsible for a number of abdominal conditions which carry a potentially high mortality.

It is a prolific cause of intestinal obstruction from volvulus or intussusception as a result of its attachment to the umbilicus or some other portion of the parietal peritoneum, mesentery or intestine. The average age of complications from this source is thirteen years, with 49 per cent of the forty-two cases reported by Hertzer and Gibson under ten years of age.

Inflammation of Meckel's diverticulum simulates very closely that observed in the appendix both as

regards the symptoms, and the sequence of pathological evidence dependent upon it, for it causes diverticulitis peri-diverticulitis, abscess and perforative peritonitis.

With the history of persistent umbilical fistula or the finding of an ileo-colic intussusception in a subject beyond the age of infancy, Meckal's diverticulum is suggested. So, also, are right-sided appendiceal symptoms where the appendix is known to be absent.

X-ray studies peculiarly enough have proven of very litle value in the recognition of Meckel's diverticulum, probably because those confronted with the acute symptoms due to this condition have been fearful of roentgenographic examination as well as by the apparent inexplicable but none the less verified fact that they do not visualize well during such an examination.

The important lessons to be learned from the literature on Meckel's diverticulum are that its complications possess an inherently high mortality; and a prompt diagnosis at least of an abdominal emergency, with consequent operation, is important. Where such diagnosis has been made and operation performed, the surgeon must beware upon finding a normal appendix. Under such circumstances careful inspection and examination of the ileum, at least the last fifteen inches, should be carried out in order not to overlook what may be a very obvious and very dangerous condition for the patient. In view, too, of the possible dangers of a Meckel's diverticulum, it should be removed when encountered in the course of operation for other lesions, and, indeed, might justify routine examination of the terminal ileum in all laparotomies where the necessarily increased operating time and increasing handling of the abdominal viscera does not materially increase the risk to the patient.

Though we have mentioned the dangers from obstruction in Meckel's diverticulum, we have thus far failed to mention the less frequently seen but none the less dangerous ulceration with perforation and hemorrhage from peptic ulcers occurring in these structures. That these dangers are real, and not imaginary, may be seen by the report of four cases of rectal hemorrhage from Meckel's diverticulum by J. T. Chesterman, who declares that rectal hemorrhage in juveniles between the ages of five to fifteen years, especially of a boy, is very suggestive of Meckel's divrticulum, and urges laparotomy for the removal of an ulcer containing Meckel's diverticulum in cases where the cause is not revealed by sigmoidoscopy and blood examination.

He further states that the hemorrhage is sudden and severe, but in cases of growth it may be slight and continuous.

The pitfall of overlooking a Meckel's diverticulum at operation for acute appendicitis is brought graphically to our attenion in the news letter in the *J.A.M.A.*, August, 1935, from Paris, where at a meeting of the Société Nationale de Chirurgie two cases were reported, one by Deton and one by Huard, in which a preoperative diagnosis of peptic ulcer of Meckel's diverticulum was made and confirmed on examination of the specimen. Deton's patient, a youth of eighteen, had been operated on for appendicitis thirteen months previously by another surgeon. When seen by Deton, the chief complaint was of pain in the right iliac region and diarrhea. After a period of observation extending over a period of three months, several intestinal hemorrhages occurred and diagnosis of ulcer of Meckel's diverticulum was made.

At operation a Meckel's diverticulum with an epithelial lining and a rounded ulcer within it was found.

Huard was called to see a boy, aged eleven years, who had been taken suddenly ill with colicky abdominal pain and a history of having had several bowel movements containing clots and bright red blood. Palpation revealed slight tenderness a little to the right of the umbilicus. On account of sudden severe intestinal hemorrhage, Huard made a diagnosis of bleeding peptic ulcer in a Meckel's diverticulum. Laparotomy revealed such diverticulum with a large ulcer on its floor.

In the discussion, Moler reported having been able to find 100 cases of Meckel's diverticulum. All agreed that sudden intestinal hemorrhage with or without signs of perforation should always lead one to suspect an ulcer of Meckel's diverticulum.

We have already pointed out two characteristics of perhaps differential diagnostic value between Meckel's diverticulum and diverticulitis of the colon, namely, the age incidence and the location of the pain. Disease of Meckel's diverticulum occurs almost exclusively in young individuals, whereas diverticulitis of the colon occurs in by far the majority of patients beyond the age of forty, with only a few notable exceptions. The pain in Meckel's diverticulum is usually located just below and to the right

of the umbilicus, whereas, in the great majority of cases of diverticulitis of colon the pain is left-sided in character.

In order to evaluate the significance and importance of diverticula of the colon more rationally, we use the following classification:

1. Diverticulosis, including that group of cases in which evidence of diverticula is found by roentgenographic examination or at necropsy and in which, from all available data, the diverticula do not bear any relationship to the patient's complaint.
2. Diverticulitis
   a. Acute
   b. Chronic
   c. Complicated
      1. Abscess formation
      2. Fistula

      External

      Internal { vesicocolic / enterocolic

      Multiple
3. Associated with malignancy.

The preponderance of symptoms and signs of complications occurring in diverticula in the left colon may be accounted for by the much more frequent distribution there (75 per cent, Hunt; 85 per cent, Abell; 77.8 per cent, Judd, Pollock and Mason) and to the fact that the walls are thinner, the lumen less distensible, and the bowel content more firm, together with the fact that there is greater proximity to the pelvic viscera with greater chance of involvement of the neighboring structures.

Abell estimates that inflammatory reaction occurs in 10 to 20 per cent of cases of diverticulosis.

SYMPTOMATOLOGY

First, of the uncomplicated cases. Symptoms here usually manifest themselves in some alteration in bowel habits. Rankin found in 254 cases studied that approximately 40 per cent of the patients complained of constipation alternating with an occasional spell of diarrhea. Associated with this was a variable degree of pain ranging from a mild heaviness, a fullness, or soreness, to severe cramps which often simulated a left-sided appendicitis. With increased narrowing of the bowel lumen by irritation and the inflammatory process a mass may be felt and a degree of obstruction will take place, with nausea, vomiting, and often stools of reduced calibre.

It is important to note that bleeding from such a case is rarely profuse. An occasional streak of bright red blood or tarry particles may be observed. It is distinctly out of the ordinary for such bleeding to be so pronounced as to require any particular treatment, and this one sign alone is not an indication for considering the case of a surgical nature since most will subside spontaneously. A blood transfusion is always in the offing in those cases which bleed sufficiently to demand it.

In summary, it may be said that the symptoms in the uncomplicated cases are due directly to the mechanical factors of a reduced lumen and fixation and ulceration which result from secondary infection.

The clinical diagnosis alone of this condition is dfficult and unreliable, but careful roentgenology is the most accurate means of recognition. Diverticula alone manifest themselves as rounded, lobe-like projections from the lumen of the colon and may show considerable variations in size.

With the advent of diverticulitis are added the roentgenological signs of irritability, chiefly spasm and hypermotility. All degrees of spasm and filling defect may occur which may occasionally lead to confusion with carcinoma. The differentiating points usually are the concentric contours in diverticulitis contrasted with the sharply irregular contours in carcinoma, and the maintenance of motility usually in the former as compared with immobility in carcinoma.

G. Jansson describes a "roentgenogram symptom" in diverticulitis of the colon which consists principally in a change in the mucous membrane relief and rigidity in the intestine. In considering the roentgenographic evidence, however, it should be pointed out that failure to visualize a diverticulum by this means does not necessarily preclude the possibility of its presence, because edema about the ostium of the diverticulum may prevent the entrance of the barium into the pouch.

Proctoscopy is another valuable means of examination in this condition, particularly so in the acute phase where one might fear to give a barium enema.

The presence of diverticula as revealed by this examination will often make the diagnosis. Rankin finds himself able to make the diagnosis in 40 per cent of diverticulitis by this means. When making the examination and establishing the diagnosis one must be most careful not to overlook cancer of the

large bowel. Since it has been a popular idea in the past that diverticula are so-called pre-malignant lesions, it should be pointed out that the relationship between cancer and diverticulitis apparently is not an actual fact but rather an incidental finding.

It is a well-established fact that cancer occurs no more frequently in patients suffering with diverticula of the bowel than in the general population, and Brown and Rankin found in 227 cases at the Mayo Clinic that cancer occurred coincidentally in diverticulitis in only four. Hunt likewise could find little evidence that cancer developed on diverticulitis.

Abell's study of the literature indicates an incidence of 1.8 per cent to 8 per cent. Bargen and Ochsner found malignancies in 6 per cent of their cases in which diverticula were discovered by clinical methods.

Conversely, at the Mayo Clinic in 679 cases of cancer of the colon operated, co-existing diverticulitis was found in only four. Nevertheless, it is often difficult and sometimes impossible to differentiate between the two lesions by X-ray and proctoscopic examination alone and, since bleeding is the most common symptom of cancer, when it occurs in the presence of diverticulitis it should be investigated as to the possibility of a co-existing malignancy.

However, bleeding alone without the other roentgenographic or clinical evidence is not sufficient to make such a diagnosis from diverticulitis alone. According to the articles which we have reviewed, bleeding is almost equally common in the two conditions.

In like manner, the diagnosis of the acute group which perforate into the peritoneal cavity with the formation of abscess is a difficult task, and, unless the presence of a diverticulum has been known previously, mistaken diagnosis is more apt to be the rule than the exception. Since the attack is usually ushered in as a peritoneal disaster of considerable fulmination, with low pain, leukocytosis, tenderness, and elevation in temperature, the condition is usually confused with appendicitis or ruptured duodenal ulcer. Such error in diagnosis is particularly bad since exploration of the left half of the colon from the usual incision for appendectomy or approach to a duodenal ulcer renders exploration of the descending colon and sigmoid difficult, if not impossible. Thus, it may be seen that it behooves the examining physician to consider the condition in any atypical case.

In those cases producing subacute or acute obstruction, the consideration of diverticulum itself is of minor importance. Usually the obstructive symptoms are sufficiently paramount to guarantee to the patient the surgical intervention which the condition requires.

The question of gross hemorrhage has already been discussed. It need only be emphasized that conservatism is the greatest virtue which can be exhibited by the physician confronted with such an occurrence.

Since the vessels eroded and causing such bleeding are usually small and very likely to collapse with fall in blood pressure, restraint of bowel activity and sedation, and heat to the abdominal wall is usually adequate therapy.

Obviously, an acutely inflamed diverticulum with a peridiverculitis might be expected to become adherent to and perforate into adjacent hollow viscera, and the literature is full of such cases, particularly the fistula formation between the sigmoid and the bladder. Such cases may actually give rise to hematuria and require cystoscopic examination for their elucidation.

Writers generally seem to be agreed that even in the face of ulceration and irritation, diverticulitis of the colon (particularly of the sigmoid) is more apt to produce melena and a localized slowly developing mass or abscess than it is to cause a generalized peritonitis, and experience seems to point to the fact that colostomy or simply irrigation of the affected portion of the bowel lumen effectually relieves the majority of such cases.

Finally, diverticulitis of the cecum is presented by Rankin as an unusual finding but, except for the case which he reports, we have been unable to find any other in the literature. His case was diagnosed preoperatively as cancer of the cecum. It was not until after a second operation and resection of the mass that its true nature was discovered. It is such a case as this that we wish to report.

The patient, Mrs. J. F. T., age fifty-six years, was first seen on February 12, 1938, suffering with acute abdominal pain beginning around the umbilicus, passing to the right lower quadrant where it became localized. It was associated with a sense of nausea but no vomiting. The patient gave a history of constipation extending over a period of about six months, but not increasing to any marked degree during that

time. Temperature 99.6; pulse 108/min. She had had no bowel movement on the day of her present attack. There were no associated urinary symptoms. No hematuria or melena.

Examination revealed a white female, rather thin but not distinctly emaciated, and apparently not acutely ill. Physical examination was negative except for slight abdominal distention and two plus tenderness in the right lower quadrant, most marked at McBurney's point.

Vaginal examination revealed marked tenderness high up in the right vaginal fornix and a sense of increased heat to the examining finger. The rectal examination showed some tenderness of the pelvic peritoneum but no mass was felt within the rectal ampulla. No rigidity of the wall was noted. No blood was seen on the examining finger upon withdrawal.

Laboratory examinations as follows:

Urinalysis showed: specific gravity, insufficient quantity; reaction, acid; albumin, trace; sugar, negative; sediment, negative.

Blood count: leukocytes, 8,250; diff. polys. 88; small monos. 6; large monos. 6; eosinophils 0; basophils 0.

Impression: Acute appendicitis. In view of the extremely low leukocyte count and the rather atypical onset, operation was withheld for thirty-six hours during which time the patient was kept under constant observation. Her pain grew no worse, but on the other hand did not subside. There was no change in her blood picture but, on repeated rectal examination, increased resistance was felt by the examining finger high up in the pelvis on the right side.

Careful questioning revealed that the patient had not been in good health for a period of about five years and that she had suffered a weight loss of ten to fifteen pounds in the last six months. Appetite had also been quite fickle but no qualitative or quantitative dyspepsia had been noted.

The question, therefore, of a malignancy of the cecum with possible perforation was debated. In view of the apparently acute character of the condition, barium enema was withheld. Laparotomy was advised and accepted.

The abdomen was opened through a mid right rectus incision and the sigmoid and terminal ileum exposed. Appendix appeared to be normal, but about one centimeter from its base on the lateral and inferior aspect of the cecum was seen a rounded mass about four by three centimeters which was moderately firm, extremely friable, fairly smooth. It was surrounded by masses of apparently recent peritoneal adhesions. The mesentery was carefully examined for lymph adenopathy but none could be found. There was no free fluid about the region of the tumor mass. It was carefully dissected free and the terminal ileum carefully palpated. There was no induration of the intestinal lumen but considerable friability and edema about the mass in the secum.

In a quandary as to whether the mass were malignant or inflammatory in nature, but lacking any regional lymph enlargement, it was decided to resect the mass, and the bowel lumen was reconstructed. The appendix was removed at the same time. The area was covered with a fringe of omentum. One rubber tissue drain was placed down to the site and the abdomen was closed in layers. The drain was removed on the third day. The patient developed an incisional infection on the fifth day which subsided by the tenth day. The wound healed and she was allowed to go home on the fourteenth day. She remained well and when last heard from, three days ago, continued so.

Pathological report by Dr. F. W. Foote, Jr., of the Department of Pathology, University of Virginia:

"*Gross description:* Rather firm mass 4x3x2 cm. One aspect smooth and appears to be serosal. It is moderately injected. On opposite aspect is a small bit of intact mucose, lxl cm., entirely surrounded by firm, yellowish white tissue in which are seen many dense connective tissue septa. On section, embedded in center of mass is a hard fecalith surrounded by a muscular appearing wall. This cavity communicates with the bit of mucosa by a narrow opening, and seems obviously to be a diverticulum.

"Accompanying the above is a slightly enlarged node. Seems essentially intact.

"*Microscopical examination:* Sections show the cavity in communication with the cecum. It is lined by intestinal epithelium somewhat flattened by the fecalith. In addition there are areas of ulceration. The muscular wall of the cavity is much attenuated, and infiltrated with mixed inflammatory cells. About the diverticulum is much scarring of the peri-cecal fat and connective tissue.

"The accompanying mole shows considerable lymphoid hyperplasia, and also an increase in num-

ber of reticulo-endothelial cells. Capsule much scarred and infiltrated with mixed inflammatory cells.

"Diagnosis: Sub-acute ulcerative diverticulitis of cecum with peri-diverticulitis.

"Fecalith of diverticulum.

"Subacute lymphadenitis."

We believe in view of the findings at operation and in the light of the now available pathological report, that this woman's case would have been better handled by simple medical measures or, in case operation was done and the mass resected, that the abdomen should have been closed without drainage, for we are confident that the removal of the drains with the withdrawal of contaminated material through the abdominal wound was responsible for the uncomfortable infection, which fortunately resulted in no fecal fistula. However, in view of the relative frequency of cancer of the colon as compared with the apparent rarity of diverticulitis of this region, we could not bring ourselves to believe that it was inflammatory in nature at the time and this materially affected us in our judgment.

The possibility of diverticulitis of the cecum should be borne in mind, we believe, for two reasons. In the first place, to save the surgeon the embarrassment of approaching such a pathological lesion through the usual McBurney incision under the mistaken impression of acute appendicitis. Removal or exploration of the mass in this case would have been utterly impossible through a muscle splitting incision. In the second place, it should be borne in mind so that if the evidences for the mass being inflammatory in nature exceed the evidences indicating a neoplastic origin, the abdomen may be closed and the patient treated medically, or a simple removal of the mass itself be performed without subjcting the patent to an extensive and dangerous bowel resection and anastomosis.

In summary, may we say that we believe in any case of an apparent acute abdominal condition which presents adequate manifestations to leave a real doubt as to its identity in the mind of the surgeon, even after the most careful and painstaking examination, the possibility of a Meckel's diverticulum or diverticulitis of the colon should be borne in mind and every effort be made to rule out the possibility of existence of these lesions before entering upon any surgical maneuvers.

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THE HYGIENE OF SWIMMING.

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History attests the popularity of swimming down through the centuries. The Greek or Roman youth who could neither read nor swim was ignorant indeed. It was Cato who taught his son to swim dangerous gulfs, and Caesar was himself an excellent swimmer. Charlemagne indulged with pride in this sport, as did Louis XI. Swimming the Hellespont in imitation of the hapless Leander, who was wont of nights to swim that strait to Hero's turret by the murmuring sea, was an aquatic feat of which Lord Byron was ever proud.

Dawn of the present century marked the advent of public swimming pools in this country, and so popular is swimming today, that these pools have practically doubled in number in the last decade. Few of us recall that our grandmothers or even our mothers, with all their gifts and graces, could lay claim to aquatic accomplishments, but now the child over eight years of age who is not more or less of an expert in the water is almost the exception. Coincident with the increase in the popularity of swimming, there has occurred seasonally with the opening of the public bathing pools and beaches a corresponding increase in infections of the ear and sinuses.

From the time of the ancients public bathing places have created a recognized problem in sanitation. It is a matter of historical record that methods of filtration were in use 400 years before Christ, and that the Chinese used alum in their public baths before the Christian era. The ruins of the great Baths of Trajan, of Caracalla and of Diocletian are but reminders that in imperial Rome bathing became a luxurious art. The magnificent structures, to which the name thermae properly attaches, contained chambers for cold, hot, tepid, sudatory and swimming baths, not to mention dressing rooms and gymnasia, museums and libraries, covered colonnades and extensive grounds filled with statues, all open to the public free of charge.

The work of sanitary engineers in our day along the lines of pool construction, the study of the bacterial content and clearness of water, contamination from sputum, diseased bathers, personal cleanliness of bathers, laundering of suits, sanitation of premises, and the rules for bathers before entering and while in the water, indicates that advances in sanitation have kept pace with the rapid increase in public bathing places throughout the country. The chemical treatment of the water, chiefly with liquid chlorin, and such mechanical measures as filtration, the ultraviolet ray and the passage of water through an ozonating apparatus have reduced contaminated water as an etiologic agent of infections of the upper respiratory tract caused by swimming to so negligible a factor that other causative agents must be of major importance.

My interest in these factors was quickened by observation of two groups of patients with sinusitis from swimming, one of which used exclusively a spring-fed pool with a flow of 3,000 gallons a minute and the other a pool, also spring-fed, with a flow of 30,000 gallons a minute. Chemicals, often alleged to be irritants to the nasal mucous membrane, were not used in either of these pools because repeated bacterial examinations of the water, made by the Florida State Board of Health, failed to show more than 150 bacteria per cubic centimeter. There was no evidence of contamination in the relatively pure spring water, having a temperature of 71 F., which both of these groups of patients were using.

Biology, the fundamental study of all phenomena of life and its manifold relations, reminds us that man derives his existence from the same ultimate sources that all other living creatures do and is subject to the same natural laws. A terrestrial being, he is adapted to his environment, but the fact that he has few structural adaptations for an aquatic environment has been largely ignored.

A summary of certain structural adaptations found among the animals whose normal habitat is water but emphasizes man's lack of anatomic and physiologic modifications such as they have for life in the water. There is no essential difference in the epithelium which lines the respiratory passages of the air-breathing animals, including man. In all, the usual stratiform flat epithelium lines the nasal vestibule and gradually assumes the structure of true respiratory mucous membrane, the stratiform ciliated cylindric epithelium. The latter is designed to keep moist the tracts through which a current of air is constantly

passing, to warm the air, and to secrete a mucus, both inhibitory to bacterial growth and bactericidal, in which the bacteria are enmeshed and carried by the wavelike motion of the ciliated epithelium to the pharynx and esophagus for disposition. The difference between man and the aquatic animals is not found here. It lies rather in the fact that those animals which are highly modified to live in the water close involuntarily or at will the anterior nares and thus protect their respiratory epithelium from the destructive action of water.

In the alligator, the highest form of reptilian life, the muscles of the anterior nares are so arranged that they close the nostrils when the head is submerged. Among aquatic birds, the booby, a bird that dives from some distance above the water to catch its prey, has no external nostrils, but the small elongated tongue, set up on a narrow stalk can be plugged directly and tightly into the internal nares. Also, the true opening of the trachea has a padded margin of muscle and connective tissue, the rima glottidis, which can be tightly closed. This valvular arrangement is supported by the ligula laryngis, a crest or projection on the thyroid cartilages, itself cartilaginous. The cormorant and the snake bird also lack external nostrils and have a similar protective mechanism. The diving petrel has external nares, but they may be closed tightly, much as the alligator closes his. Minute, hairlike slits serve the penguin for external nostrils, but the arrangements in the glottis and internal nares are similar to those of other birds. The scale-like membrane entirely closing the external nostrils of the frigate bird indicates transition from open nares. Although the external nares of some aquatic birds cannot be closed, in the species reviewed water in no instance comes in contact with the parts lined by the respiratory epithelium.

In the mammalian groups forms modified for life in the water have arisen. The beaver, the hippopotamus, the seal, the walrus, the manatee and the dugong have a musculature which closes the nostrils and protects the stratiform ciliated epithelium. A similar arrangement of the anterior nares exists also in the cetaceans, a group more highly modified to life in the water than any other among the aquatic mammals.

The anatomy and physiology of the ear of aquatic animals also show the modifications nature has provided for their protection in the water, provisions conspicuously absent in man. The alligator, for example, has immediately behind the eye a hinged cornified flap which constitutes a covering for the ear. It closes tightly as the reptile submerges and thus prevents water from coming in contact with the membrana tympani. Other aquatic animals such as the beaver and the hippopotamus have an analogous modification.

Nature has provided the warm blooded aquatic animals with adequate means of coping with their environment and maintaining their bodily temperature. The cetaceans, for example, live their entire lives in cold water and many of them maintain a higher normal temperature than man. Immediately beneath the integument a thick layer of blubber, which is a nonconductive dense fat, performs the function of keeping their bodies warm. Other aquatic animals living in cold climates, such as the seal, the walrus and the sea-lion, have in addition to the fatty layer, a heavy coat of fur.

But what of man's adaptation for water? He is equipped with nothing homologous to the musculature aquatic mammals have for protecting from water the nasal cavities and their appurtenances. Anatomists have found that the compressor narium of man, that small muscle rising from the superior maxilla and inserted by an aponeurosis across the bridge of the nose into its fellow of the opposite side, is a small rudimentary muscle at best and very hard to demonstrate. With the dilator naris anterior and the dilator naris posterior, which oppose it, its function is merely to confer facial expression. Students of comparative anatomy and of biology are agreed that man is so far removed from being an aquatic animal that he is without adaptation for an aquatic environment. When he assumed the upright position, he also lost the drainage by gravity of his maxillary and sphenoidal sinuses, leaving it solely dependent on the wavelike cilia of the ciliated epithelium. It is evident, therefore, that aquatic animals have adaptations for keeping water from the nasal and aural cavities and for maintaining bodily temperature in water which are not only sufficient for their mode of living but far superior to any means at the disposal of man. Also, in these animals drainage of the sinuses is more complete than in man because the ostia are so situated that drainage by gravity is a material factor.

The protective mechanism of the human nose con-

sists chiefly of the secretion of mucus, the ciliary action of the epithelium and the high degree of vascularity of the submucosal stroma over the turbinates. A thin, tenacious mucus, secreted by goblet-cells and serous glands, moistens the ciliated epithelium which lines the nose and its sinuses. Changing every fifteen or twenty minutes, this mucus moves rapidly, continuously and smoothly along the walls of the sinuses, backward along the turbinates and downward in the pharynx, propelled by the cilia until it reaches smooth epithelium and is carried into the esophagus. The antibodies which the mucus contains are elaborated in the epithelial cells, making this mucous film highly resistant to bacteria. The sinuses are thus kept practically sterile under normal conditions. The submucosal stroma is highly vascular over the turbinates, making possible a rapid inflow of blood when irritants interfere with ciliary action; it is, however, very thin and lacking in blood supply in the sinuses. The ciliated epithelium lining the nasal cavity also lines the orifice and proximal end of the eustachian tube, offering with its wave-like motion an effective protection against aural infections. Any interference with the functional activity of this protective mechanism, whether mechanical, chemical or thermal, breaks down nature's barriers and renders the nasal cavity and its appurtenances susceptible to infection.

Sinusitis, secondary to swimming, may result from foreign bacteria which gain entrance to the deeper portions of the nasal apparatus and conjoined structures, or from bacteria normally and constantly present in this region which multiply to pathologic proportions in individuals with lowered resistance. The nasal mucus, inhibitory to bacterial growth as it is, is washed away as a result of diving, leaving the mucous membrane exposed to the destructive action of water. Fenton[1] mentioned the irritative action of water on this membrane, stating that by osmosis it draws out the saline element, causing edema and acidosis of cells, loss of ciliary activity and eventual death of cells, thus lowering local resistance. Diving also inhibits the vibrations of the ciliated epithelium, as do reduction of temperature and irritating chemicals, thereby affording an opportunity for infection not only to invade the nasal passages but to enter the eustachian tube and travel to the tympanum. Virtually all cases of otitis media are interdependent on infection of the nose or sinus. Obviously, many infections of nasal and aural passages follow indulgence in the sport of swimming and diving.

Lowered resistance, which renders the individual more susceptible to the pathogenic organisms normally harbored in the upper air passages, is of paramount importance as a possible causative factor of sinusitis following swimming. A primary consideration here is the length of time one can remain in the water without reducing the temperature of the body and thus lowering resistance. Cold water has a veritable appetite for heat. The swimmer has only to dive from air of moderate temperature into water of exactly the same temperature to be reminded by the resulting chilling shock that lips get blue and teeth chatter in "temperate" water because the water takes away heat from the body twenty-seven times faster than air does. It follows then that prolonged cold baths cause the body to lose heat rapidly. Fox[2] stated that a bath of from fifteen to twenty minutes' duration with the water at a temperature of 70 F. may cause the loss of heat to increase to fivefold that of the normal basal rate; in strong, normal persons, however, this loss does not result in an immediate lowering of bodily temperature, but if the bath is prolonged, the production of heat fails to keep pace with the loss, and the temperature of the body falls.

Pasteur[3] and others found that chilling lowers resistance. In a study of lowered resistance from chilling in relation to sinusitis following swimming, the temperatures of 250 children under thirteen years of age were taken under my direction, both before and after they had been swimming for forty-five minutes in an indoor pool with the temperature of the water at 73 F. Only thirty, or 12 per cent, maintained a normal temperature, and of the remaining 220 all showed a reduction of temperature, many to as low as 95 F.

It has been shown that prolonged chilling of the bodily surfaces causes a decreased motility and phagocytic activity of the leukocytes. Also, it is now well established that the chilling of these surfaces causes constriction of the blood vessels in the skin and periphery, which is followed by a constriction of the blood vessels of the nasal mucous membrane. The autonomic nerves regulate and control the functional state of the mucous membranes, including their secretory and ciliary activity, and this state is intimately related to the functional state of the peripheral blood vessels. Owing to peripheral

vasoconstriction, the skin becomes relatively ischemic when the body is exposed to low temperatures, especially in the absence of muscular activity, and since the autonomic orientation of the respiratory mucous membrane corresponds to that of the skin, this membrane also becomes ischemic. Prolonged ischemia of the mucous membranes naturally reduces the local resistance and favors infection. The defensive inflammatory reactions of these membranes elicited by the toxic substances resulting from infections depend, however, on the autonomic status of the tissues as such.

A study of some of the underlying physiologic disturbances which predispose the individual to upper respiratory and aural infections following swimming led me to conduct an experiment recently at Jacksonville Beach, Florida. Eight lifeguards at this resort were subjected for forty-five minutes to swimming in the ocean with the water at a temperature of 68.5 F. Just before and immediately after this period the weight, temperature, blood pressure and blood count of each swimmer were ascertained. After the swim all of the participants exhibited a diffuse generalized purplish hue, and their lips and nail beds were moderately cyanotic. The rectal temperature showed an average reduction of four degrees. The erythrocyte count showed an increase of from 700,000 to 1,500,000 cells; the leukocyte count showed a consistent increase of from 8,000 to 10,000 cells. The differential count showed a normal Schilling index. Both the systolic and the diastolic pressures were increased, the diastolic showing the greater average rise, which was from twenty to thirty points. These findings indicated that prolonged chilling produces peripheral vasoconstriction, peripheral stasis and anoxemia.

How long then should one remain in the water? Even after taking into consideration the wide variation in individual reactions, it appears that children should not remain in the water longer than thirty minutes and that non-swimmers of any age in water ranging in temperature from 70 F. to 75 F. should remain no longer than twenty minutes. These periods should be materially reduced where bathing in the surf brings to the fore the factor of fatigue. Shock the healthy person can take with benefit, but prolonged submersion of the body in an element which rapidly robs it of its natural heat is plainly conducive to lowered resistance and invites infection.

Lacking adaptation to an aquatic environment as he does, man nevertheless has one natural means of protecting the mucous membrane of the nasal passages when swimming. That is the proper method of breathing. By exhaling through the nose while the head is submerged and inhaling through the mouth while the head is above water, the swimmer tends to maintain a positive air pressure in the nasal cavities and thus protects the sinuses and eustachian tube from water. In the new strokes which require partial or complete submersion of the face and head, this method of breathing is highly important. Just before diving, the swimmer should take a deep inhalation through the mouth and then exhale slowly through the nose while under the water. The rush of water into the nasal cavities, incident to diving feet foremost, may readily cause acute infections of the sinuses, middle ear and mastoid in swimmers of all ages.

Under proper conditions swimming is healthful both as exercise and as recreation. Man is, nevertheless, a terrestrial being. When out of his normal sphere, he should understand and cope intelligently with the limitations nature has placed upon him.

SUMMARY

Modifications for life in the water, such as are common to aquatic animals, are so conspicuously lacking in man that controlled conditions pertaining to time spent in the water, bodily temperature and proper methods of breathing are important factors in minimizing some of the common hazards of swimming. Exposure of the nasal and aural cavities to water and lowered resistance from chilling favor infection in swimmers. By heeding the handicaps of nature and not ignoring the fundamental laws that govern his being, man may make of the popular sport of swimming an important adjunct in promoting the health of the nation.

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THE RELATION OF THE VETERINARIAN TO THE MEDICAL PROFESSION.*

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To have the privilege of appearing before the Members of the Faculty and Senior Class of the Medical College of Virginia is a signal honor as well as a definite responsibility. It was my good fortune to have been for nine years a member of the veterinary faculty of one of our state colleges and for eleven additional years to have been associated more or less intimately with members of the medical profession. This experience has, I believe, enabled me to obtain a rather comprehensive understanding of the problems of both groups and to recognize the fact that the two professions have more in common than a superficial examination would disclose.

It is always heartening to those of us who admire the great Osler to remember his intense interest in comparative pathology during his formative years. Many of his earlier publications were concerned with problems of a strictly veterinary character and, like all things that Osler accomplished, they were well done. His interest in disease in all species of animals and his continued appreciation of the ubiquity of morbid processes still provide inspiration for every student who desires to understand medicine comprehensively.

Fundamentally, veterinarians and physicians are concerned with identical problems. These are, briefly, the diagnosis of disease, its treatment or alleviation and its prevention and control. More specifically, the veterinarian functions in three distinct though somewhat overlapping fields: (1) administering to sick and injured animals, (2) protecting a billion-dollar livestock industry against losses from infectious and parasitic diseases, and (3), the protection of the public against those diseases of animals that are communicable to man. The last function constitutes a very definite responsibility and one in which complete cooperation and coordination with the physician is essential if the public welfare is to be properly served.

To review briefly the present status of the veterinary profession in America a few words concerning the number of veterinarians and the facilities for veterinary education would seem pertinent. At the present time there are in Canada and the United States approximately 12,000 graduate veterinarians. In America there are only twelve institutions offering courses leading to a veterinary degree; ten of these are located in the United States and two are in Canada. All of the institutions in the United States are part of a state university or state college. The last private veterinary college closed its doors more than ten years ago. Eight of the twelve schools require at least one year preveterinary work of college grade before the student may matriculate in the veterinary school proper, and four years of professional training are required for a degree. The total enrollment in the twelve schools during the current (1937-38) year is 2,772. The great interest of young men (and a very few women) in veterinary medicine as a profession is indicated by the fact that most of the schools have been forced to limit the freshman class owing to a lack of teaching facilities. Cornell University, for example, during the past summer considered the applications of 276 prospective students but only forty were admitted. The enrollment for the freshman class last fall in the different schools varied between forty and sixty.

The fact that more prospective students desire to enter veterinary schools than can be provided for is not unlike the situation that confronts the medical schools. In both instances the condition is a healthy one in that students of superior caliber can be selected. This eventually results in raising the quality of the entire profession, and I think it can be said that just as we have better trained physicians today than we had twenty-five years ago, so we also have veterinarians who are better qualified to discharge the duties and responsibilities society properly expects from the professional training that is provided in a large part by public funds.

Although disease processes have affected men and animals since prehistoric times, certain circumstances of civilization have definitely permitted many of the diseases due to bacteria to become more prevalent as civilization advanced. Crowded conditions of living, artificial housing, unnatural food, pampering of the

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physically unfit, and the opportunity for pathogenic bacteria to be transported great distances within a comparatively short time, all contribute to the difficulty of controlling infectious diseases among animals and human beings. The fact that many of the most important bacterial diseases of animals may occasion serious sickness or even death in human beings makes it imperative that knowledge of the transmissibility of animal diseases be better understood by both the physician and the veterinarian.

The daily press has done much to inform the public at large concerning the danger to man of certain diseases that are primarily of animal origin, yet it is only those instances in which a relatively large number of persons are affected that receive sufficient attention to incite in the average person more than a passing interest in this phase of the public health problem. When it is realized that animals are susceptible to a list of diseases almost as large and as varied as those which affect human beings, the general public will better appreciate that there are other than economic reasons for the control and eradication of animal diseases.

The economic loss to the livestock industry of the United States due to preventable diseases of livestock mounts to a stupendous figure annually. This loss, being of a tangible nature and capable of being represented by dollars and cents, stimulates a certain vigilance on the part of the various Federal and state authorities. In those diseases of animals which are directly or indirectly communicable to man, it is extremely difficult to arrive at a means by which the damage done can be adequately and properly expressed. Anyone who has seen a child suffering the horrible agonies of a death from rabies or who realizes the danger in the consumption by human beings of raw milk from tuberculous cows does not require further evidence that there are reasons aside from economic ones why infectious disease of animals must be controlled.

Without the cooperation of the physician, the veterinarian, and general public, satisfactory control of the diseases of animals that are transmissible to human beings is impossible. The cooperation of the general public can be obtained only by enlivening in the public's mind an interest in all matters pertaining either directly or indirectly to the problems of public health. This is best done by the dissemination of information relative to the diseases or conditions which may menace the life or well-being of the public, not collectively, but as individuals. Physicians and veterinarians can usually be depended upon to cooperate when each understands the functions and limitations of the other. Neither can do the task satisfactorily alone.

A list of the diseases of animals which are communicable to man includes the following:

A. Diseases of domestic animals and birds

Tuberculosis	Swine erysipelas
Anthrax	Cowpox
Foot and mouth disease	Glanders
Malta fever and abortion disease	Rabies
	Psittacosis
Milk sickness	Certain parasite diseases

B. Diseases affecting rabbits and small rodents

Plague	Rat-bite fever
Tularemia	Rocky Mountain spotted fever
Infectious jaundice	

In this discussion no attempt will be made to deal specifically with all of the diseases of animals which are transmissible to man. However, since I am especially interested, as an experimentalist, in tuberculosis, I would like to devote a few paragraphs to this disease and discuss briefly one or two others.

Nothwithstanding the fact that notable advances have been made in the campaign against tuberculosis, its final eradication or control constitutes one of the most important and stupendous undertakings confronting those charged with the betterment of public health. The progress to date has been tremendous, and if the program of the fight against the disease, as outlined, can be strictly adhered to, its ultimate suppression may be expected.

As you well know, in addition to man, tuberculosis affects many of the lower animals, including practically all of the domestic species, many of the captive wild animals, as well as fish and reptiles. Human beings are usually affected by the human type of the organism. Studies in the United States have shown that, in extrapulmonary tuberculosis of adults, the bovine type of the organism occurs in 3 to 4 per cent of the cases. Until recently, pulmonary phthisis was considered as almost invariably due to the human type of the tubercle bacillus, yet Griffith in 1933 reported forty-nine instances in which bovine tubercle bacilli were demonstrated in the sputum of patients in England and Scotland. In so far as I am aware, no instance of pulmonary tuberculosis in the human

being due to the bovine form of the tubercle bacillus has been reported from America. It is said that approximately 40 per cent of the cattle in Great Britain are tuberculous; hence the statement that 6 per cent of all deaths from tuberculosis in that country are due to the bovine type of the tubercle bacillus, while startling, is nevertheless credible. A considerable number of cases of pulmonary phthisis due to the bovine type of the tubercle bacillus has also been reported from Denmark where the incidence of tuberculosis among cattle is also high.

Tuberculosis in cattle is usually due to the bovine form of the organism, whereas chickens, pigeons, turkeys, geese, ducks and pheasants are affected with the avian type. Each of the three varieties of the bacillus mentioned may cause tuberculosis in swine. The human being seems to be extremely resistant to the avian form of the organism and infection from this source is rare.

Other possible sources of danger to man from tuberculous animals are dogs and cats. Dogs are susceptible to both the human and bovine forms of the tubercle bacillus, but tuberculosis in the cat from the human type of the tubercle bacillus seems unlikely since in none of the reported cases has the bovine type been found to be responsible for the disease. Parrots are usually infected with the human or bovine type of the organism and, when infected, these birds must be considered a menace to human beings.

Without question tuberculosis still remains one of the most important diseases with which man has to cope, and an understanding of all possible factors pertaining to the dissemination of the agents responsible for the infection is not only desirable but necessary if the sympathetic understanding and cooperation of the public is to be obtained in suppressing this insidious scourge. The campaign for the eradication of bovine tuberculosis is national in scope and is under the direct supervision of the United States Department of Agriculture. Splendid progress has been made in the two decades the work has been under way and already there has been a very noticeable diminution in the amount of infection in children from the bovine type of the organism. We should, however, be watchful that the importance of the subject be not minimized and ever mindful of the fact that tuberculosis of animals, and particularly of cattle, may be transmitted to human beings. We should therefore tolerate no compromise with measures that would lead to the ultimate elimination of this insidious disease which is truly preventable. Indicative of the success of the campaign against tuberculosis in cattle is the fact that, on January 1, 1938, the amount of infection was less than 0.5 per cent in all but thirty-two of the counties in the United States. Ten of these counties were in South Dakota and twenty-two were in California.

This improvement in the situation with regard to bovine tuberculosis exemplifies, I believe, the splendid results that can be accomplished by close cooperation between the veterinary and medical professions. It is true that the administrative responsibilities and the mechanics of the millions of tuberculin tests that were necessary to achieve these results were entrusted to veterinarians, yet the number of foresighted physicians who assisted in organizing the attack are legion. As a result of the insistence of the public health physician most municipalities now require that the milk sold for human consumption be from tuberculin-tested herds, and as a further safeguard most milk must also be pasteurized. As a consequence of this unity of function between the physician and the veterinarian the United States undoubtedly has the safest milk supply of any nation in the world.

The importance of the subject makes a few words necessary concerning undulant fever. From the standpoint of the number of animals affected and the economic loss resulting therefrom, Bang's disease of cattle is by far the most important disease affecting the dairy industry. The disease has been recognized for over a hundred years and it is prevalent among cattle throughout the entire world. The cause of the disease, *Brucella abortus*, was discovered by the Danish veterinarian, Bang, in 1896. This organism is closely related to the microörganism responsible for a similar disease in swine and a disease in goats known as "Malta fever". The swine form of the disease occurs largely in the United States, particularly in the Middle West, and in northern Europe, whereas Malta fever occurs most frequently among the goats of Mediterranean countries and in certain areas in the southwestern part of the United States. As you know, the three organisms are so nearly alike that sensitive laboratory tests are necessary in order to separate them. Since 1924 there has occurred in man (particularly in the United States) a disease resembling Malta fever of the Mediterranean countries, but in which there has been no contact with goats or goat's

milk. This is the disease known as "undulant fever".

In cattle, the etiologic agent of abortion disease inhabits the uterus and mammary glands and may provide a source of infection for other cattle when eliminated with certain of the bodily discharges. The presence of the bacteria in the milk of many infected cows naturally brings raw milk under suspicion as the cause of the disease in human beings, provided that it is definitely known that the patient has had no contact with goats or partaken of goat's milk. The accusation is strengthened by the fact that many of those affected have been heavy consumers of raw milk from cows known to be affected with abortion disease.

Pasteurization of all milk has been advocated by some as the easiest and most direct way of rendering milk safe. However, the facts do not warrant the assumption that even though all milk were pasteurized there would be no more cases of undulant fever. To pasteurize the milk and neglect the infection at its source, which is the infected cow or swine, is to establish a situation which must be continued indefinitely. While a few individuals who otherwise would contract the disease might avoid infection by this means, the most important phase of the problem, which is the eradication of the disease from farm animals, is relegated to a minor position.

However suggestive the evidence implicating cows' milk as the cause of more than an occasional case of undulant fever in man, it certainly cannot be considered conclusive. The fact that in many cases undulant fever has occurred among workers in packing houses where contact with infected hogs is common, emphasizes the possibility of infection from sources other than milk. It is apparent that the knowledge we possess concerning the transmission of the bacillus of undulant fever from animals to human beings is entirely inadequate to explain all the facts satisfactorily.

Since the incidence of the disease in man is very low (only 2,095 cases were reported in the United States in 1936) the likelihood of undulant fever reaching alarming proportions is negligible. There has been a tendency I think to magnify the possibilities of contracting undulant fever from the drinking of cows' raw milk which is entirely out of proportion to the actual hazard involved.

Physicians interested in epidemiology have contributed much valuable information pertaining to the possible sources of infection with undulant fever. It seems especially important that the diagnosis of every clinical case of this disease be confirmed if possible by the isolation of the infective agent and the determination of the type of bacterium by appropriate laboratory procedure. Most strains of *Brucella abortus* have sufficient distinguishing features to enable the type to be identified, and when possible this should be done in order to trace the source of the infection.

At the risk of exhausting your patience I feel obliged to say a few words about rabies, the disease that someone has designated as "the most dreaded of all human diseases". The situation created in the United States by this fearsome and truly preventable disease constitutes a major challenge to physicians and to veterinarians alike. That an enlightened citizenry should practically eliminate typhoid fever, make notable progress in bringing tuberculosis under control, and control smallpox and diphtheria effectively yet tolerate this menacing threat to human life with apparent complacency, is indeed cause for concern.

While rabies occurs in practically all animals, the frequency with which it appears among dogs explains its importance from a public health standpoint. Illustrative of the fact that the disease is most prevalent in dogs are the figures showing the number of cases of rabies in animals in the State of Maryland for the ten-year period prior to 1928. They were: Dogs 462, cats 20, cows 3, calves 3, horses 1, mules 1, sheep 1, hogs 1, and gray squirrels 1. If the disease could be eliminated from dogs the danger to human beings from rabies would be negligible since in the great majority of cases the disease develops as a consequence of the bite of an affected dog.

The symptoms of rabies are in general much the same in all animals. The disease in the dog, however, provokes the most suggestive behavior, probably because of the relatively high degree of intelligence possessed by the majority of these animals. After an average incubation period of from twenty-one to forty days, the dog exhibits a change in disposition. He is restless, inclined to be irritable, and easily excited. As his restlessness increases he may bite at imaginary objects, and when approached even in a friendly way, may snap at the proffered hand. Such dogs are easily startled by any sudden noise. They have a tendency to run in a wild and aimless fashion and

they may wander as much as twenty-five miles from home. In this stage of the disease the dog is said to be affected with "furious rabies" and he exhibits an aggressive behavior toward other animals and man which may result in the disease being spread over a considerable territory. The "furious" stage may be mild and of a short duration and be followed by paralysis which affects the throat and muscle of the lower jaw.

The disease may assume another form, however, in which the muscles of the jaw are paralyzed almost from the beginning. This is known as "dumb rabies". Being unable to bite, the dog remains quiet. His lower jaw drops, he cannot close his mouth, and his tongue hangs out. He remains quite helpless and apparently has no desire to bite. Occasionally the symptoms of dumb rabies follow the aggressive behavior that characterizes the furious form of the disease. As a consequence of the paralysis the dog has great difficulty in swallowing. The mere sight of water will occasionally cause a spasm of the throat, hence the name "hydrophobia". As the mouth hangs open, saliva may drool from the lips. Progressive degeneration of the spinal cord results in a paralysis that gradually extends to the legs, and the animal is unable to rise and soon reaches a stage of exhaustion which ends in death. Once the symptoms become manifest, in the dog the disease usually runs a rapid course which rarely extends beyond four or five days and is with very few exceptions always fatal.

While the symptoms of rabies are fairly characteristic, a definitely conclusive diagnosis of the disease can be made only by laboratory studies including an examination of the brain.

In case of a bite by a rabid dog it is of paramount importance that medical supervision be instituted immediately. The dog responsible should if possible be captured alive. Contrary to common practice the animal should not be killed, since it will be of the greatest diagnostic assistance if the dog be confined in a safe place and carefully observed for a few days. If the dog is affected with rabies, death will usually occur within from three to five days, in which case the brain should be removed for the purpose of obtaining a laboratory diagnosis. If instead of dying the animal becomes normal and is alive after two weeks, the possibility of its having been affected with rabies is remote and the persons bitten will be saved much anxiety and perhaps the inconvenience and expense of antirabic treatment.

Indicative of the situation with regard to rabies in certain parts of the United States at the present time are the figures on its incidence in Alabama. From January, 1922, to August, 1936, a period of approximately fourteen years, a positive laboratory diagnosis of rabies was made on 9,282 animals; 34,864 human beings were given antirabic vaccine, and forty-two persons died. The report of the Public Health Service shows that for the year 1936 there were reported from twenty-five different states 4,853 cases of rabies in animals, with sixty-nine deaths of human beings. The states in which the greatest number of cases of rabies in animals occurred in 1936 were: Massachusetts, 109 cases; New Jersey, 195 cases; Indiana, 644 cases; Illinois, 318 cases; Missouri, 118 cases; South Carolina, 375 cases; Alabama, 885 cases; Mississippi, 243 cases; Louisiana, 269 cases; Texas, 154 cases, and California, 1,051 cases.

In comparison with many other serious diseases the total number of animals or human beings infected with rabies is small indeed. However, the entire story cannot be visualized from statistics alone. The fear, anxiety, suffering, expense and inconvenience attributable to the presence of this disease are factors that cannot be expressed in precise terms. Death from rabies is a needless and horrible tragedy.

The rabies problem in Chicago in 1928 was especially acute and of sufficient interest to be briefly recounted here. In that year 7,813 persons were bitten by dogs suspected of being rabid. This means that a monthly average of 651 people were exposed to the possibility of a horrible death by a disease which can be suppressed and even eradicated by the enforcement of proper measures. To make the picture even more revolting is the fact that, in Chicago, during the first ten months of 1928, fifteen persons died as a result of having been bitten by rabid dogs. This situation had a very significant relation to the fact that, before drastic measures were taken to combat the disease, there were estimated to be 150,000 dogs in the city of Chicago, many of which were ownerless. During 1928, 50,000 of these were caught and destroyed, and as the number of ownerless dogs diminished, there was of course a corresponding reduction in the number of dog bites reported.

The economic importance of suppressing rabies is

well illustrated by the following brief account of an outbreak with which I am familiar. This outbreak of rabies occurred in 1924 in the southern part of Colorado. A herd of about 300 range cattle were maintained in a district where there had been a considerable number of cases of rabies in dogs and coyotes. During the course of a year seventy of the cattle had died of what was considered a mysterious malady until investigation revealed the true nature of the disease. The outbreak was finally suppressed by a systematic campaign against the coyotes of the district, and during a period of several months some 300 of these animals were killed. Laboratory examination of the brains of several of these coyotes demonstrated conclusively the presence of the disease.

There is probably no other disease in which the cooperation of physicians and veterinarians is so important as in the control and eventual eradication of rabies. Frequently all the forces of reaction and ignorance are aligned against what should seem, to reasonable-minded persons, logical and proper measures to combat a disease that is more deadly than the bite of a rattlesnake. Sentimentality, hysteria and just plain "cussedness" frequently unite to frustrate the means necessary to control the problem. One man, for example, who conducts a widely read syndicated health column for newspapers, has even had the effrontery to deny the existence of the disease we recognize as rabies.

Specific recommendations for the control and elimination of rabies in dogs are as follows: 1. The dissemination of knowledge of the disease to the general public. 2. The impounding of all stray and ownerless dogs. 3. The registration or licensing of all dogs whose owners regard them of sufficient value to continue the responsibility of ownership. 4. Compulsory antirabic vaccination of all dogs before a license is issued or registration permitted. 5. Enforcement of a strict quarantine to prevent the movement of dogs from one state to another without a qualifying health certificate attesting the animal's health and previous antirabic vaccination, such a certificate to be issued only in the event that there has been no case of rabies in the immediate vicinity for a previous period of six months. 6. Restriction of all dogs to their owners' premises unless they are on a leash. Strict adherence to these regulatory measures throughout the United States for a period of ninety days would in all probability eliminate rabies.

Another function for which the veterinary profession is responsible is the meat inspection service administrated by the Federal Bureau of Animal Industry of the U. S. Department of Agriculture. Approximately 850 veterinarians are required for this work and appointment to the service is attained through a competitive Civil Service examination. An idea of the magnitude of this task is indicated by the fact that, during 1936, a total of nearly 62,000,000 animals were slaughtered and inspected. Large as this number may seem, it represents only about 65 per cent of the nation's meat supply. The remaining 35 per cent is prepared without the benefit of any inspection whatever, or under city, county, or state inspection which is often inadequate or inefficient owing to lack of a trained personnel and the failure of public health authorities to insist that meat sold locally should have as adequate inspection as that sold interstate. That the Federal meat inspection service is rendered economically is evident from the fact that, if the cost of the entire service were assessed against the number of animals inspected at the time of slaughter, the cost would be about seven and one-half cents per animal. Because of its scope and magnitude our Federal meat inspection service is unique among the meat inspection services of the world. It is a service in hygiene and sanitation of incalculable worth to the nation.

In closing, I think it can be said very definitely that the veterinary profession recognizes the fact that an efficient public health service, under the direction of capable and properly trained physicians, constitutes probably the most valuable single institution ever designed for the welfare of the people. For service in the realm of sanitation to insure a safe and wholesome food supply and in the control of diseases that are transmissible to human beings, the veterinary profession offers a trained personnel that is eager to assume a definite responsibility in advancing the program of public health.

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A NEW OPERATION FOR THE TREATMENT OF SALPINGITIS.*

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Tubal resection as a treatment for salpingitis was first advocated by Falk in 1936. The purpose of this is to prevent the recurrence of inflammatory attacks in the tube by a procedure which is analogous to the prevention of epididymitis by resection of the vas. The principle involved in both procedures is the cutting off of the avenues of infection from the original focus. Modern methods for treating salpingitis conservatively are curing many cases which formerly came to surgery. In fact, in nearly every case the inflammatory process can be made to subside and it is only for the relief of symptoms that the patient comes to operation. Very often these symptoms are not in proportion to the amount of pathology present, making it rather difficult at times, after the abdomen is opened, to determine from which of the abnormalities observed the discomfort is arising.

One finding is rather common—that the uterus, tubes and ovaries are buried deep in the pelvis from which they have to be extricated. That this in itself can be the cause of symptoms is entirely reasonable.

Falk, after studying a large series of cases, made the following observations:

"1. When the patient with quiescent pus tubes was adequately treated so as to remove all infection from her genitalia and separated from her consort to prevent reinfection, her tubal infection did not recur.

"2. Reinfection of chronically infected tubes did not occur in patients who had had a hysterectomy. In the literature, it was found that Robinson described hysterectomy as a treatment for pus tubes.

"3. In spite of the known fact that a gonorrheal infection of the tubes is always bilateral, patients were seen repeatedly who had a pus tube on one side and a fairly normal tube on the other. As a result of this observation several of these tubes were removed and examined. It was found that the apparently normal tube was completely obstructed at the uterine cornu, whereas in the pus tube on the other side the connection with the uterine cavity seemed to be maintained.

"4. It has been shown by Simpson and Curtis that gonorrhea of the tube is a self-limited disease and that the organisms in the tube die when the patient's temperature is normal for two weeks. As a result, one might therefore assume that the tube cannot reinfect itself. The infection must come from without.

"5. It was found that those patients on whom a bilateral cornual resection had been performed for sterilization purposes never developed pus tubes."

These observations confirm his opinion that the uterus is the avenue of infection and if that avenue can be interrupted, reinfection of the tubes will not occur. Probably the cause of reinfection is the excitation of foci around the genitalia by sex and douche trauma. It is conceivable that if these foci could be entirely eradicated, salpingitis in a patient would subside of its own accord and nothing further would have to be done. Various methods of treatment of these foci have been attempted with only a moderate degree of success. Another difficulty is that patients, as a rule, do not cooperate well, especially with regard to sex trauma, and while this cooperation may easily be obtained in the more intelligent, it is almost impossible with those of the lower mental and economic strata.

A necessary concomitant of tubal resection is sterilization, which is an undesirable feature of this procedure. It is true that many patients who have had salpingitis and have been cured, eventually become pregnant because the tubes do not become occluded. This is not the rule, however, and in my experience the majority of these patients remain sterile. Since sterility will be the result of this procedure, it must be considered as one of two evils, the other being the discomfort, inability to work and the

*Read before the Fourth District Medical Society at Victoria, Va., April 26, 1938.

symptoms for which the patient comes to the surgeon. Hence, the choice must be made between the two, and the lesser evil accepted.

What is to be done at operation depends, of course, upon what is found. Encapsulated abscesses should be removed if possible, but organs should not be removed merely because they appear inflamed. One does not excise the whole area of skin involving a furuncle in order to cure it. A case in point may be cited:

"C.W., negro, aged twenty-four, complained of severe, incapacitating abdominal discomfort and metrorrhagia. Her history extended over a period of three years, during which she gradually grew worse, and, while the symptoms would subside after using hot douches, lying in bed and especially after a course of Elliott treatment, they would recur with increased severity. Examination was unimportant, except for tenderness over the whole inguinal region and in the pelvis. Pelvic examination revealed that the organs were practically in one mass and the uterus was firmly fixed. The temperature did not rise above 99° for a week prior to operation. At operation, the pelvic organs appeared as one mass in which intestines were entangled to such an extent that the removal of the pathology would have been extremely hazardous. With much difficulty the fundus of the uterus was discovered and the medial ends of the tubes uncovered. These were cut as close to the uterus as possible and the ends, ligated, but the lateral ends were not sutured to the uterus because they were so fixed that they could not be moved. The abdomen was then closed and the patient made an uneventful recovery. Her symptoms disappeared and within a month after operation she had gained six pounds, the adnexal regions were noticeably less dense than they had previously been and the metrorrhagia had disappeared. Three months after operation she had gained twenty pounds, had been working for four weeks and had had no recurrence of symptoms. At eight months after operation, her only complaint was that she had some abdominal discomfort between periods, which lasted a day or so. This I interpreted as ovulation occurring in adhesions which did not allow the free escape of the fluid."

Conservatism should be the key-note in pelvic operations for inflammatory conditions of this type and it is obvious that the ovaries should be preserved. Because the ovarian tissue looks bad does not mean that the hormone producing cells necessarily have been destroyed. It may be readily argued that the tubes, when occluded, serve no useful purpose. Yet I feel that they should not be removed, for the following reasons:

1. The removal will interfere with ovarian circulation. While, of course, the main circulation of the ovary comes from the ovarian arteries, a substantial part of it is derived from the uterine also, and it is not always possible to remove the tube without affecting this arterial anastomosis in some way.

2. Removal of the tube alters the tension between the pelvic organs. The ligation of the vessels of the broad ligament and the contracture of scar tissue after the inflammation has subsided may give rise to symptoms. That this can be the cause of symptoms is illustrated by the following case:

"L.S., white, aged twenty-nine, had been operated six years previously for salpingitis. What had been done could not be determined pre-operatively because the hospital in which she had been a patient was at some distance and had been closed. Examination revealed a uterus of normal size and in the normal position, with some tenderness in the right adnexal region. The old midline incision was excised and the abdomen entered without difficulty. Both tubes, the left ovary and the appendix had been removed. The right ovary appeared slightly larger than normal and had a somewhat dense capsule. It seemed to me that the uterine-ovarian ligament was thickened and very tight. This was divided, allowing the ovary to be suspended only by the ovarian ligament. I left it this way in order to determine whether this tension could be the cause of the symptoms. It has now been six months after operation, of which she has been at work four, and there has been no recurrence of symptoms."

The operation of tubal resection is, of course, very simple. The procedure which I use varies in some of its details from that of Falk, but is essentially the same principle. It is of especial importance to deliver the uterus and the adnexae from the deep pelvis for the reasons previously stated. The suspension of the uterus should now be done. If the round ligaments are too short for a Baldy-Webster suspension, a continuous suture of silk may be run along them and tied. A Baldy-Webster suspension is preferable if this can be accomplished easily. The tubes are then divided between clamps, as close to the uterus as possible, as I believe cornual resection is unneces-

sary. The lateral end of the cut tube is then sutured to the ventral and not the posterior surface of the uterus. This has for its purpose the further lifting of the tube and the ovary out of the pelvic cavity. If the tube is unusually long, an additional suture is taken in the tube to attach it to the fundus of the uterus.

Thirty-one cases have been done, of which twenty-seven are completely relieved of their symptoms. Three are moderately improved and their discomfort is not severe enough to warrant reoperation. One, a negro, aged thirty-four, was reoperated seven months after her original operation because of recurrence of symptoms. This was the second case in the series. At operation, reinfection of the tubes had not occurred but it was found that the suspension was inadequate and the fundus had descended into the cul-de-sac.

SUMMARY

The surgery of recurrent salpingitis has been modified greatly in recent years because of the success which attends the modern conservative methods. Comparatively few cases come to operation, and in these the cause of the discomfort is not always obvious. It seems to be due to malposition, associated with chronically inflamed tubes and ovaries adherent to the pelvic peritoneum and intestines by adhesions which are derived from the subsiding inflammatory reaction. It has been the custom, up to this time, to remove such organs, but the removal in a great many cases did not relieve the symptoms. In addition, the removal of ovarian tissue caused so many patients to have emotional upsets and symptoms associated with the nervous system that the remedy was in some instances as incapacitating as the disease.

Falk reported seventy-five patients operated on, of which forty-three were completely asymptomatic and only ten had symptoms which were severe enough to interfere with work. None had to be reoperated for the severity of symptoms.

In dealing with inflammations of the ovary one cannot always predict how much of the hormone function of the ovary will be retained when the inflammatory process has subsided. Therefore, the conservation of whatever remains is important. Resection of the tubes offers a means of preventing the recurrence of inflammatory attacks in the tube as well as disturbances resulting from the removal of the pelvic organs, as it allows the hormone function of the ovary to be restored to whatever degree possible.

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18 Liberty Street.

SIRENOMELUS—CASE REPORT.

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Sirenomelus or sympus is a monster fetus with varying degrees of fusion of the lower extremities resembling a mermaid. The sirenomelus monster, though rare, has attracted a great deal of attention throughout history. In Greek mythology the siren was a symbol of death. Odysseus tied his men to the masts of the ship when passing the island of attractive sirens. Plinus assures us in his natural history that men lived who had only one lower limb by which they were able to walk, jump, and which they used to protect themselves from the rays of the sun when reclining on their backs. He is given the credit of first mentioning this deformity. He called it monocoli. Aristotle does not list it in his fairly extensive catalogue of monstrosities. This shows its relative infrequency. Science, in the sixteenth century, began its research and attempted to allay superstition. The first attempt at an accurate description of a sireniform monster is attributed to Racheus (1542). However, Paré still believed the sirens to

be a peculiar race of people. Sympus is rare in animals, but has been found in a calf. Reported human cases are rare and previous to 1800 the records of such cases are more legendary than authenic. Goeffrey St. Hilaire (1838) attempted a classification of sirenomelian monsters: 1. Symele; 2. Sirenomele; 3. Uromele. Foerster (1861) made a similar classification and used a more descriptive terminology which is now generally accepted in this country and abroad. According to Foerster's classification there are three types: (a) Sympus apus, a variety in which the feet are absent and there is complete fusion of the lower extremities. (b) Sympus dipus, a form in which both feet are present, but the femora are fused, and (c) Sympus monopus, a form in which one foot is present, but there are two distinct sets of bones for the lower extremities. The author's case is of the sympus apus type. According to Proshek, sympus apus variety is said to be the most common of the three types of sympus. Sympus dipus is the most infrequent type. Ballantyne in 1897 was able to collect 116 cases from the literature. In 1927 Kampmeier collected fifty more cases, and added his own case; of the seventy-nine cases reviewed by Kampmeier there were only five cases of twins and they were all males. The case here reported was also a twin, and its twin was a male. Since 1927 I have been able to find in the literature fourteen additional cases besides the one herewith reported. One of these cases found in the literature was also a twin.

Etiology:—The ancients thought the unfortunate mother had been too familiar with a merman or thought it was a product of the supernatural. William Harvey in the middle of the seventeenth century was the first to attempt an explanation of monsters on an embryological basis. Haller, a hundred years later, began anatomical research which caused a real science of teratology to emerge from mythology.

Many causal theories have been advanced, but those advanced by Weigert, Bolk, and Dareste attract the greatest attention. Weigert (1886) asserts that the single umbilical artery (a most common characteristic of sympus) arising directly from the aorta before its division is the persistent omphalomesenteric artery. This single artery is present in almost but not all cases of sympus and is only found in these monstrosities. He believes the other malformations are only secondary to the malnutrition as a result of impaired blood supply. Bolk, however, attributes the malformation to a defective germ-plasm of either mother or father or both, which affects the arrest of the divisional development of the posterior segments in the early embryonic life, causing fusion of the corresponding structures in the midline posteriorly. Bolk sees the causal origin in changes in the germ-plasm, whereas Weigert's theory is based upon impaired blood supply to the parts. Dareste (1891) advanced the theory that an abnormal narrowing of the caudal amniotic fold producing compression of the contained embryo is responsible for this deformity of the posterior region of the body.

Labangle and Regnier, Ballantyne, and Kuliga found no evidence of an allantois or urachus in the specimen which they examined and came to the conclusion that the yolk-sac took on the function of the allantois, and the malformation resulted from this change. Kampmeier found an allantois in his specimen and disproved that it was always absent. He believes that the persistence of the omphalomesenteric artery indicates a participation of the yolk-sac in the establishment of the placenta.

No entirely satisfactory explanation has as yet been furnished regarding its causation, and often there is no history of malformation in the family indicating a hereditary tendency.

The increasing knowledge of comparative embryonical morphology together with recent experimental researches point to two causes of these aberrant forms, i.e.: (1) Defects in the germ cells supplied by either or both parents; (2) Abnormal conditions influencing the development of the normal ova.

Characteristics:—Usually each specimen has certain deformities that are not characteristic of sirenomelus, i.e., malformations of the head, chest, upper extremities, harelip, etc., but there are certain abnormalities that are usually present in each type.

Hirst and Piersol (Human Monstrosities, p. 87) state that: "The symeli are characterized by an imperfect development of the pelvis and lower extremities; by an *atresia ani et urethrae*, by more or less intimate fusion of the lower extremities and by a twisting of the lower limb so that the femora are united by the internal condyles, the legs by the fibulae and the feet, if they exist, by the fibular edges and little toes so that the heels look forward." According to St. Hilaire, the limbs are united by what in the normal position is their lateral

borders, i.e., the lateral aspect of the thighs, the fibula side of the leg, and the outer sole of the foot, with the necessary result that the flexor surface of the extremity is directed forward, as is also the sole of the foot. The toes are pointing backward, with the great toes on the outside of the misshaped foot. There are in addition numerous visceral defects which are more or less constantly found. The terminal and pelvic portion of the digestive and urogenital tract suffer most severely. *Atresia ani et recti* is almost invariably present, and there is frequently occlusion of the gut higher up and often terminates at the cecum in a blind sac or in the urinary bladder, suggesting a persistence of the cloacal stage of development. The external genitalia are practically never developed. The generative glands can often be recognized, but usually in an atypical location. The remaining reproductive organs are always malformed or absent. The kidneys, if present, are usually malformed and often misplaced. They frequently have retention cysts, especially if the ureters are absent. The bladder is rudimentary or absent.

Perhaps the most constant anomaly in sympus is the presence of only two vessels in the umbilical cord, one vein and one artery. The artery is not one of the usual umbilical arteries, but is an omphalomesenteric artery, i.e., an artery of the yolk-sac, taking its origin directly from the abdominal aorta or it may appear as a continuation of the superior mesenteric artery. The hypogastric or the internal iliac arteries from which the umbilical arteries normally arise are always very small or absent.

Sympus apus (sirenomele) is the severest type of sirenomelus. The musculature is most defective and often absent below the knee. Many muscles are recognized, if at all, only by their nerve supply. The sacral nerves are all rudimentary or absent and even the lumbar plexus is imperfectly formed. Extensive malformations of the spine are frequently found more marked in the lumbar and sacral region, and usually the pelvis is imperfectly attached to the lumbar spine.

CASE REPORT

Mrs. N. A. S., age twenty-six, reported to my office on August 8, 1932, for prenatal care. She was found to be a well-nourished, white, adult female, showing some stigma of degeneration with no physical deformities. Her heart and lungs were normal and the other physical findings were negative. She was in good health and doing her own house work.

She denied venereal diseases. She had had the usual diseases of childhood and typhoid fever. Her appendix had been removed three years before; otherwise she had been in good health.

There was nothing of interest in the family history, except this patient had one brother with a club foot.

This was her third pregnancy. Her pelvic measurements were normal and she had experienced very little difficulty in her previous deliveries. The first was an easy delivery at term, but a stillbirth, although she had felt movements until labor had begun; she stated that the fetus appeared to be well formed. The second birth was more difficult, but spontaneous at term. The child had a harelip and a cleft palate; otherwise it was perfectly developed. She had had no miscarriages, and her convalescences from deliveries were normal.

Photograph of Monster.

Her periods are always irregular, from three weeks to two months, but not painful. The first day of her last period was on April 9. Life was felt August 25. During the next few months she developed rapidly in size and complained of slight dizziness at times and she developed some edema, although her blood pressure and urine remained normal, and her blood Wassermann was negative. Twins were suspected, but this was not confirmed by X-ray, and it was thought best to wait until nearer term.

November 9, about 10 A. M., she began with abdominal discomfort, but was not having active pains. She began active labor about midnight and delivered twins spontaneously at 10:30 A. M., following immediately after the membranes ruptured. There was a normal amount of amniotic fluid. A seven months premature, live, male baby, without deformities, was

delivered. She delivered, with the next few pains, the dead fetus here reported. There was a normal amount of blood lost. There were two cords, two normal placentae attached, and one amniotic sac. The mother had an uneventful recovery and was well and healthy when last seen.

This monster was prematurely small, but all features were well developed and there were no external deformities above the umbilicus. The genital region and anal regions were covered by integument, and there was no rudimentary evidence of genitals or anus The one lower extremity was partially ankylosed at the hip joint and the rudimentary foot appeared to be turned backward with the heel forward. The measurements are as follows:

Measurements	Centimeters
Crown-heel	37.2
Crown-romp	27.4
Spine	16.8
Upper extremities	16.3
Lower extremity	10.8
Upper extremities:	
arm	6.5
forearm	5.4
hand	4.4
Intercristal	6.4
Biparietal	8.4
Occipito-frontal diameter	10.4
Anterior-posterior diameter at level of nipple	8.2

It is to be regretted that an autopsy report is not herewith submitted, but when it was presented to the pathologist at the Medical College of Virginia for his study Dr. Joseph Bear of the Obstetrical Department saw the specimen and convinced me that it would be of more value as a museum specimen for teaching students than to dissect it to determine other internal deformities. A rather large number have already been dissected in search of a possible cause, but no definite cause for this deformity has been found. It is now in the museum at the Medical College of Virginia for teaching purposes.

21 North Market Street.

ANILIN DYE DERMATO-CONJUNCTIVITIS—REPORT OF A CASE.

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As far back as 1887 we have known that anilin dyes are capable of causing severe kerato-conjunctivitis. One of the first cases reported was that of a painter who used anilin pigments in his work. Since that time numerous cases have been reported in dye factory workers. It seems that the reaction is provoked more often by the basic form of the dyes, rather than by the neutral or acid form of the dyes. The mechanism of the action of the dyes seems to be due to the fact that many of them are protoplasmic poisons.

The manifestations of the irritant reactions caused by the anilin dyes range from mild to very severe episodes. The mild reactions are merely an increased hyperemia of the part involved, while the more severe reactions will exhibit marked swelling of the lids and the surrounding tissues, and marked chemosis of the palpebral and ocular conjunctiva. The cornea may become infiltrated, and finally may develop into some form of corneal dystrophy, or into actual ulceration which may lead to the loss of the eyes. An anterior uveitis is also seen in the more severe cases.

There are several common sources of anilin dye dermato-conjunctivitis; one form, seen fairly often, is in those persons in whom shavings from indelible pencils have gained access to the conjunctival sac either by accident, or by being willfully placed there, the latter being the case in some malingerers who wish to excite sympathy or to escape some unpleasant duty. The second form, one that is seen much too often, is observed after the use of eyebrow and eyelash dye. Women in their quest for added lure are willing to go to all extremes to reach this end, and once they have their mind made up to have this litle act of beautification carried out, even the possibility of serious damage to their eyes is no barrier.

Greenbaum,[1] in 1933, reported a case of dermato-conjunctivitis due to the use of Lash-Lure on the eyelashes. Harner,[2] in 1933, reported three cases of dermato-ophthalmitis due to the eyelash dye Lash-Lure. In his cases, the first showed some superficial corneal infiltration, but eventually recovered without any permanent disability; the second case developed corneal ulcers on each cornea, and had as

an end picture fairly large leukomas on each eye; the third case rcovered without permanent disability. Bourbon,[3] in 1933, reported a case with marked palpebral swelling and conjunctival chemosis after the use of dye on the eyelashes; here, too, no permanent ill effects were noted. Jamieson,[4] in 1933, reported a case of eyelash dye dermatitis following the use of Lash-Lure. In this incidence, recovery was attained after a prolonged time. McCally, Farmer, and Loomis,[5] in 1933, reported a case of bilateral corneal ulceration following the use of Lash-Lure. In this case the outcome was extremely poor, only light perception being left in either eye. Rodin,[6] in 1934, reported a case in which there was a severe bilateral reaction of the eyes, with some erosion of the cornea, followng the dyeing of the eyelashes and eyebrows.

REPORT OF A CASE

A white woman, age thirty years, first seen on April 17, 1938, with the history of having had her eyebrows and eyelashes dyed the day before with the preparation known as Lash-Lure. Two hours after the application of the dye, she noticed a burning and reddening of the eyes. The lids began to swell simultaneously. When first seen the lids of both eyes were markedly edematous, as were the surrounding tissues. There were many minute watery red elevations on the somewhat flushed areas. The palpebral and ocular conjunctivae were markedly chemotic and moderately reddened. There was a moderate amount of a muco-purulent discharge. The corneas were clear; the anterior chambers were normal. The irises were normal; the pupils were equal, and reacted actively to exposures to darkness and light. The fundi were normal, with the exception of a fairly marked hyperemia of each disk. This hyperemia became less as the external reaction subsided. There was rather marked photophobia, and the patient was unable to get about without aid. When seen on the following day, April 18, the condition had progressed, and the patient was hospitalized. Physical examination revealed no pathological findings of importance, other than that found in the eyes. The hematology was: R.B.C. 3,300,000; W.B.C. 9,300. Differential: Neutrophiles 70 per cent; lymphocytes 29 per cent; eosinophiles 1 per cent. Hemoglobin 63 per cent (Dare). Wassermann negative. Urinalysis was normal. Conjunctival smears taken daily revealed numerous leukocytes, but no eosinophiles, and no organisms were found. The patient's past history revealed no facts that might lead one to think of an "allergic background", with the exception of a mild dermato-conjunctivitis two years ago, after the application of Lash-Lure to the eyelashes.

Management of this case was as follows: When first seen the patient was put on cold boric acid compresses (one teaspoon of boric acid to a pint of water) to the eyes, and the instillation of 5 per cent boric acid ointment every four hours. The second day the swelling and redness was much worse, the lashes were clipped at their bases, the scissors being well covered with vaseline, so as to keep any of the lashes from falling into the conjunctival sac. The patient at this time was hospitalized. The cold boric acid compresses were continued, and the boric acid ointment was replaced by the use of a solution of boric acid—grains four to one ounce of sterile mineral oil. This solution was instilled into each conjunctival sac frequently. The patient was kept in a darkened room. From the time the eyelashes were clipped the patient improved, and was able to return to work nine days after the application of the dye.

The dye Lash-Lure, according to investigations,[7] contains an anilin derivative, but does not contain paraphenylenediamine, as once thought. In these cases a factor of specific sensitivity seems to exist, for the dye is applied to many lashes without ill results. However, the occurrence of reported cases seems to be enough to warrant against the use of this artificial beautifying agent, though, as we all know, women will never give up this procedure. In view of the obstinate resistance, it seems that a skin sensitization test should be carried out in all cases contemplating such decoration, and this procedure should not be in the hands of beauticians.

In cases in which anilin dyes reach the conjunctival sac in large quantities, many solutions have been urged as flushing agents, namely hydrogen peroxide, weak alcoholic solutions, and 5 per cent to 10 per cent tannic acid solutions. However, probably just as efficient and much less irritating is the copious use of water as the flushing agent, and this should be followed by the frequent instillation into the conjunctival sac of the above mentioned solution of mineral oil and boric acid. Our chief duty is to protect the cornea, and, although cold compresses give much relief, care must be taken in their use, for the nutrition of the cornea might suffer from the con-

stricting action on the vessels that the cold exerts, and ulceration might be more liable to develop.

SUMMARY

1. Review of reported cases of dermato-conjunctivitis following the use of eyelash dyes.

2. Report of a case of dermato-conjunctivitis following the application of Lash-Lure to the eyebrows and eyelashes.

3. Management of case is outlined.

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3. Bourbon, O. P.: Severe Eye Symptoms Due to Dyeing the Eyelashes. *J. A. M. A.*, 101: 1559, November 11, 1933.
4. Jamieson, R. C.: Eyelash Dye (Lash-Lure) Dermatitis with Conjunctivitis. *J. A. M. A.*, 101: 1560, November 11, 1933.
5. McCally, A. W., Farmer, A. C., and Loomis, C. E.: Corneal Ulceration Following Use of Lash-Lure. *J. A. M. A.*, 101: 1560, November 11, 1933.
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7. *J. A. M. A.*, 101: 364, July 29, 1933.

Medical Arts Building.

PRESIDENTIAL ADDRESS.*

PHILIP S. SMITH, M.D., F.A.C.P.,
Abingdon, Virginia.

I have no intention, or desire, to introduce a topic that will result in expressions of political, social or economic diffierences of opinion that divide not only our profession but Americans at large. Whether one believes that the upheaval in our socio-political economy is a product of certain policies of our present Federal administration or is inevitable as a part of a world-wide movement—such discussions *per se* have no place in our considerations as a medical society.

However, since these problems have already involved every phase of our national life, the practice of medicine included, it seems pertinent and necessary to ask ourselves not only what is our individual attitude toward them but that of organized medicine as well.

You doubtless know of a recent meeting in Washington of the National Health Conference, attended by representatives of business men, the professions, labor groups, farmers, the American Medical Association, and a group of physicians speaking as individuals. This representative assembly convened to hear the report of the Inter-Departmental Committee appointed by the President. The transactions, though not yet published *in toto*, are thought-provoking. Other meetings of physicians and laymen, singly and jointly, have been devoted to discussions of the same general theme, viz., "Is medicine as practiced today meeting the demands made upon it by those not able to finance the costs of illness either in the home or hospital?" An important and influential group of doctors has indicated their belief that such demands are not being met by organized medicine. The American Medical Association has discouraged previously any movement to alter the present status, but recently inaugurated a thoroughgoing survey conducted by county and district societies.

I am confident that those who have given thought to the matter will agree unanimously that the physicians of the United States have a challenge presented to them that cannot be ignored by refusing to recognize it. Doubtless each of us has his opinion, either partially or wholly formulated, but to only a few has the opportunity been given for a public expression of that opinion. Those who have not been provided with sufficient data to enable them to arrive at an intelligent conclusion cannot excuse themselves from taking an active interest in the questions and policies at issue; for it seems axiomatic that unless the rank and file of doctors express themselves clearly and forcibly, either the few who direct the affairs and policies of the American Medical Association, or, more unfortunately still, certain individuals or agencies in Washington will undertake it for them.

It is recognized that the foregoing statements are matters of common knowledge and discussion. There is only one phase of the matter I wish to stress. It is the fact that the Southwestern Vir-

*Address of the President before the Southwestern Virginia Medical Society, at Blacksburg, Va., September 22, 1938.

ginia Medical Society, representing a large section of the State and constituting one of the largest component units of the Medical Society of Virginia has not recognized formally a problem that so vitally concerns the individual physician and organized medicine. As already stated, I have no intention of asking you at this time for an expression of opinion. The matter requires adequate consideration. But, as your retiring President, free from political considerations, I should feel delinquent in my duty if I did not express my strong conviction that each and every component unit of our State Society should, at a suitable time and after mature deliberation, convey to the State Society an expression of opinion. This would enable the parent organization to adopt resolutions reflecting a representative and convincing expression of the Virginia physicians in a manner that has not been possible to date.

I am aware of the fact that the subject was introduced for discussion in the House of Delegates of the American Medical Association at the San Francisco meeting in June. That body deferred action until the completion of its nation-wide survey of medical conditions and needs. As this is written a called meeting of the House of Delegates of the A.M.A. is being held in Chicago to discuss certain phases of the problem.* It is admitted that a survey conducted by the American Medical Association (though others have recently been made by government agencies) should prove most informative and helpful in obtaining data relative to existing facts and needs; but it is believed that the most reliable expression of opinion possible as to what should be done can be obtained by each State society, having first determined the views of all component units, adopting resolutions that reflect accurately the sentiments of a majority of the physicians of that state. A representative legislative body such as the House of Delegates of the A.M.A. should have its delegates advised by the doctors who elect them of the majority opinion in a matter so unprecedented and important to the present and future practice of medicine.

Since this Society will have no opportunity before the meeting of the State Society to formulate such resolutions, I hope that our delegates to the Danville meeting will read the address of Miss Josephine Roche, Chairman of the Inter-Departmental Committee, in the *J.A.M.A.*, July 2, 1938, the report of the Committee on Medical Economics to the State Society published in the VIRGINIA MEDICAL MONTHLY, September, 1938, and also other data available; that our delegates will give serious thought to the matter in advance of the meeting of the State Society, enter into the discussions of the House of Delegates, and report through a committee their observations and recommendations to our membership at the Spring meeting of the Society.

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*NOTE.—The action of the A.M.A. delegates in its recent-called meeting can be interpreted as indicating either that it is felt that adequate medical care of the indigent is not now being provided or else a conviction that such action is needed to forestall a more radical policy of governmental agencies. By no means have all of the problems been solved. The responsibility of our delegates to the State Society meeting is not materially affected by the action of the A.M.A. delegates.

Johnston Memorial Clinic.

Woman's Auxiliary to the Medical Society of Virginia

President—MRS. HAWES CAMPBELL, Venter.
President-Elect—MRS. HENRY A. LATANE, Alexandria.
Corresponding Secretary—MRS. PAUL PEARSON, Aylett.
Recording Secretary—MRS. E. LATANÉ FLANAGAN, 3413 West Franklin Street, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Avenue, Richmond.
Chairman, Press and Publicity—MRS. WILBERT E. BUTLER, 217 East Indian River Road, Norfolk.

Auxiliary to Mid-Tidewater Association.

The regular meeting of the Woman's Auxiliary to Mid-Tidewater Medical Association met at the home of Mrs. E. L. W. Ferry, Miller's Tavern, with Mrs. A. W. Lewis, presiding.

The annual report was read, after which Mrs. William Gwathmey, chairman of the nominating committee, presented her slate, which was accepted and the following officers elected:

President—Mrs. Hawes Campbell.
1st Vice-President—Mrs. Horace Hoskins.
2nd Vice-President—Mrs. M. H. Harris.
Historian—Mrs. Horace Hoskins.
Chairman of Program and *Hygeia*—Mrs. W. S. Cox.

Chairman of Membership—Mrs. R. D. Bates.

The meeting was turned over to the new president, Mrs. Campbell, who gave an interesting report of the State Meeting in Danville. She also stated that one of her objectives for the year would be a membership drive.

A delicious dinner was served, sponsored by the local doctors.

The afternoon session was turned over to our Program Chairman, Mrs. Cox, who distributed interesting articles to be read on various subjects pertaining to health.

BLANCHE V. LEWIS,
(MRS. A. W. LEWIS).

Norfolk Auxiliary.

The Woman's Auxiliary to the Norfolk County Medical Society, at a meeting November 14, made plans for its annual card party to be held on the afternoon of January 31. The Auxiliary arranges this party each year to raise money to maintain a patient at the Victory Memorial Hospital for the tubercular.

The Auxiliary also discussed plans for a luncheon to be held at the next meeting on January 11. A layette shower will be given in connection with the luncheon meeting. Every year the Auxiliary provides the King's Daughters Clinic with several layettes.

Mr. J. E. Healy made an address on behalf of the Red Cross Roll Call.

Mrs. Millard Savage, president, presided.

(MRS. BROCH D.) EUGENIA H. JONES,
Chairman, Press and Publicity.

The James City-Williamsburg Medical Auxiliary

Met with Mrs. A. M. Sneed, of Toano, for its October meeting, with eleven members present. The President, Mrs. T. B. Henderson, presided at the meeting.

The election of new officers took place at this time and the incoming officers are: Mrs. Fred Person, president; Mrs. J. M. Henderson, vice-president; Mrs. E. B. Holderby, secretary; and Mrs. B. I. Bell, treasurer.

Old and new business was discussed. A motion was made to provide paper cups and stand for the Matthew Whaley School in Williamsburg.

Our President brought the beautiful silver trophy for the rest of us to see. It was greatly admired and, of course, very much appreciated. The trophy was won for making the greatest gain in membership. Five new members were added last year, making a total of fifteen.

Our hostess gave us a lovely vocal selection, after which the meeting adjourned to be followed by a delightful social hour.

MABEL HENDERSON,
(MRS. L. V. HENDERSON).

Petersburg Medical Auxiliary.

The Medical Auxiliary of Petersburg has completed its organization for the year, with Mrs. Allen Barker succeeding Mrs. Fletcher J. Wright, Sr., as president. Other officers are: Mrs. W. B. McIlwaine, president-elect; Mrs. Clabe W. Lynn, vice-president; Mrs. C. S. Dodd, recording secretary; Mrs. H. M. Snead, treasurer, and Mrs. George Reese, historian. Committee chairmen are: Mrs. E. L. McGill, membership; Mrs. Meade Edmunds, public relations; Mrs. Herbert C. Jones, program; Mrs. Philip Jacobson, *Hygeia;* and Mrs. F. J. Wright, publicity.

Plans for the annual hospital linen shower were discussed and it was decided to hold the event in February in order that contributing churches and others might take advantage of the January linen sales.

The Auxiliary decided to hold regular meetings in the homes of the members.

Richmond Academy of Medicine.

At a recent meeting of the Auxiliary to the Richmond Academy of Medicine, the following officers were elected for 1939:

President—Mrs. James K. Hall.
President-elect—Mrs. L. O. Snead.
Vice-President—Mrs. H. B. Haag.
Treasurer—Mrs. J. O. Fitzgerald.
Corresponding Secretary—Mrs. A. I. Dodson.
Recording Secretary—Mrs. Lee Sutton, Jr.

Public Health Statistics

I. C. RIGGIN, M. D.,
State Health Commissioner of Virginia.

The report of the State Health Department's bureau of communicable diseases, as compiled for the

month of November, shows the following cases compared with the same month in 1937.

	1938	*1937*
Typhoid and Paratyphoid Fever	12	30
Diphtheria	282	210
Scarlet Fever	198	165
Measles	73	222
Meningitis	4	19
Poliomyelitis	2	3
Rocky Mountain Spotted Fever	1	1
Typhus Fever	1	3
Undulant Fever	1	3
Tularemia	11	4

PROGRESS IN THE CONTROL OF VENEREAL DISEASES IN VIRGINIA

The activities of the State Health Department's Division of Venereal Disease Control since its organization in December, 1936 and up to July 1, 1938 has largely been concerned with a study of the extent of the venereal disease problem in Virginia; the facilities available to handle the problem; the development of a control program; and the prosecution of such portions of the program as was consistent with the amount of funds available.

The General Assembly of Virginia, in session January and February, 1938, appropriated $11,915 for each year of the biennium. An additional amount of $2,900 was allotted to the Division of Venereal Disease Control from departmental funds in order to secure a total of $14,815, which was the sum necessary to match an allotment of $58,983 made by the U. S. Public Health Service to Virginia. This amount, $73,789, was thereby made available July 1, 1938 for the control of venereal diseases.

Treatment facilities providing medical attention for indigent patients with venereal diseases gradually have been expanded. On January 1, 1937 there were nineteen venereal disease clinics. Since that time forty-six clinics have been added, making a total of sixty-five.

In the first quarter of 1938 (January, February, March), a total of 58,864 visits were made by patients to these clinics. During that period 47,625 treatments for syphilis and 1,680 treatments for gonorrhea were administered. In the second quarter (April, May, June), 62,823 patient visits were made to the clinics. During that period 53,055 treatments for syphilis and 1,590 treatments for gonorrhea were administered. In the third quarter (July, August, September), 66,901 patient visits were made to the clinics. During those months 55,164 treatments for syphilis and 1,758 treatments for gonorrhea were given.

On October 10, 1938, free antisyphilitic drugs were made available to hospitals, clinics and private physicians for the treatment of all cases of syphilis regardless of the patient's financial status. The only requirement necessary to obtain the drugs is a report of the case to the State Department of Health.

During October, 8,440 grams of the various arsenicals were distributed. This amount represents the equivalent of 29,870 doses. A total of 41,820 cubic centimeters of bismuth subsalicylate in oil was furnished the profession, representing a distribution of 20,900 doses. Triple distilled water also is supplied without charge. During this same period 18,150 ampules, containing 10 c.c. each, were furnished.

The medical profession has cooperated in reporting the syphilis cases it has under treatment. There has been a marked increase in the reporting of syphilis during the first six months of 1938. In this period 6,582 cases were reported. During the year 1937, 6,836 cases of syphilis were reported. This represents an increase of 100 per cent in reporting, and is of very definite value in helping to evaluate the extent of Virginia's venereal disease problem.

A new system of reporting venereal diseases was inaugurated in counties and cities served by full-time health departments on January 1, 1938, and in counties without health departments on September 1, 1938.

The program for the control of venereal diseases in Virginia is making definite, but conservative progress, and such additional features of the projected control program as are consistent with the available funds are being developed.

NEW MOBILE X-RAY UNIT

Because of an increasing demand for X-ray service in rural areas, the State Health Department recently purchased a new mobile X-ray unit. The truck provides facilities for taking chest pictures, developing films, and making the information immediately available to local physicians who, in the first instance, refer the patients to the clinic. This new truck also is equipped with a fluoroscope. This service will be of considerable help to the thirty-two physicians now operating local pneumothorax stations throughout the State.

With this additional mobile equipment, the State has been divided into an eastern and a western dis-

trict. The truck in the western section is being operated by Dr. Charles Scott; the clinic personnel consisting of a technician, nurse, and clerk. The one in the eastern section is under the supervision of Dr. William Randolph, similarly staffed. This improved service will enable the State Health Department to bring an expert diagnostic and consultative service to all sections of the Commonwealth.

The new unit fills a long-felt need. It should be instrumental in further lowering the tuberculosis death rate in Virginia by making early diagnosis available to all sections and both races.

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Gilliland Laboratories, Inc.
- Antipneumococcic Serum, Refined and Concentrated, Type I.
- Antipneumococcic Serum, Refined and Concentrated, Type II.
- Antipneumococcic Serum, Refined and Concentrated, Types I and II.

Chas. C. Haskell Co., Inc.
- Whole Leaf Tablets Digitalis "Haskell", 1½ grains.

Eli Lilly & Co.
- Elixir Amytal, 2 grains per ounce.
- Elixir Amytal, 4 grains per ounce.

S.M.A. Corporation.
- SMAco Nicotinic Acid 50 mg. tablets.
- SMAco Nicotinic Acid 25 mg. tablets.

Propaganda for Reform

Colloidal Sulfur in the Treatment of Chronic Arthritis.—The Council on Pharmacy and Chemistry has reviewed the literature concerning the use of colloidal sulfur in the treatment of arthritis, and reports that sulfur may have some therapeutic value in affording temporary symptomatic relief in some forms of arthritis, but the literature does not afford evidence concerning the type of cases in which it may be useful. It often induces fever (and other symptoms) but it is not known whether the fever will be useful or harmful in a given case. There is an almost total lack of knowledge concerning the contraindications. The optimum dose has not been determined. It is unsuited for experimental use except in institutions, or under other conditions in which its effects may be followed intelligently and accurately for prolonged periods. It would seem to be of great significance that not one of the leading arthritis clinics of the United States has adopted the use of sulfur in the treatment of arthritis, so far as can be determined. The Council voted to accept no form of sulfur for the treatment of arthritis until satisfactory evidence of its usefulness is available. (*J. A. M. A.*, October 29, 1938, p. 1657.)

Book Announcements

New Books.

The following are recent acquisitions to the Library of the Medical College of Virginia and are available to our readers, the only cost being return postage:

Bulloch, W.—The history of bacteriology.
Crane & Patterson—Guide to the literature of chemistry.
Dill, D. B.—Life, heat and altitude.
Doe, J.—A bibliography of the works of Ambroise Pare.
Dubois—Basal metabolism in health and disease.
Economo, L.—Baron Constantin von Economo, his life and work.
Eulenburg-Wiener, R. von—Fearfully and wonderfully made.
Fassett & McGary—Hayfever plants of the Middle West.
Ferrio, L.—Terminologia medica.
Fulop-Miller, R.—Triumph over pain.
Gilbert, M. S.—Biography of the unborn.
Guttmann, W.—Medizinische Terminologie.
Healy, W.—Personality in formation and action.
Hogben, L.—Science for the citizen.
Hutchison & Hunter—Clinical methods.
Imms, A. D.—Recent advances in entomology.
Jensen, H.—Insulin.
Lederer, F. L.—Diseases of the ear, nose and throat.
Levine, S. A.—Clinical heart disease.
McBride, E. D.—Crippled children.
McCrady, E., Jr.—The embryology of the opossum.
Nixon, J. A.—Textbook of nutrition.
Oparin, A. T.—The origin of life.
Peter, L. C.—The principles and practice of perimetry.
Reighard, J. & Jennings, H. S.—Anatomy of the cat.
Savill, A.—The hair and scalp.
Spann, M.—Interlinear German reader.
Traquair, H. M.—An introduction to clinical perimetry.

Synopsis of Clinical Laboratory Methods. By W. E. BRAY, B. A., M. D., Professor of Clinical Pathology, University of Virginia; Director of Clinical Laboratories, University of Virginia Hospitals. Second Edition. St. Louis. The C. V. Mosby Company. 1938. 12mo of 408 pages. Fifty-one Text Illustrations and Seventeen Color Plates. Leatherette. Price, $4.50.

This book is reviewed editorially in this issue.

Doctor Bradley Remembers. By FRANCIS BRETT YOUNG. Reynal and Hitchcock. New York. 1928. Octavo of 522 pages. Cloth. Price, $2.75.

This book is reviewed editorially in this issue.

Virginia Medical Monthly

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Editorial

Doctor Bradley Remembers.

Doctor Bradley Remembers (Reynal & Hitchcock, Inc.) is a long book, a sad book, and an important book for all who would understand the lives of the vast majority of medical men since it makes plain the toil that is exacted of them, the motives that actuate them, the ethics that control them, and the rewards that come to them. It is an English book, written by an Englishman and portraying an English *locale,* but there is little in it which might not have happened anywhere in America.

The title suggests the plan of the book and its somewhat gentle tone. This is the story of a doctor's life as he himself sees it in retrospect when his fires are low, when he has accepted all that fate has brought him, "knowing well he had performed as much as was in him." Only now and then does the action of the book assume the dramatic quality of immediacy and then only because the scene by reason of its importance has been able to hold for the doctor its electrical quality all through the years.

The book is significant from many points of view. It is a study of three successive generations and to this extent is a study of inherited mental and physical characteristics and environmental influences: the turbulent lower class father and the better born but temperamental mother in poverty produce a proud and sensitive son, driven by the ghosts of childhood unhappiness to strive lonely and unaided for his living and success; in turn, he and his leisure class wife, gifted with talent but with limited intellectual endowment, produce the "difficult" son who, coddled and indulged, carries in his own unstable nervous and mental make-up the seeds of his future self destruction. The pattern of the first generation's paternal domination and maternal protection is repeated in the second. The book is thus a contribution to the literature of the mother-son relationship and of the father-son relationship. It offers no advice as to how such untoward happenings as are recorded may be avoided save by an implication that self control in all human relations and a dignity that refuses to domineer over the personality and career of another makes for happiness and health.

The book is also a history of the Nineteenth Century's developing industrialism and its concomitant social revolution. It is a history of the changing *mores* from provincial Victorianism to post war license. It is a history of the dawn of medical science which means it is a history of medicine as any physician who is seventy-five years old has seen it practiced in his life time. Here are vignettes, some in *aqua fortis,* of various well known and easily recognized types of doctors; the able showmen, the unreconstructed rebels, the political manipulators, the gifted devotees, the big men and the little, the fat and the lean. Here is the small town medical school growing into the metropolitan university, and here is

the familiar anatomical *diener* who doles out "his parts" with unseemly but inspired favoritism and remembers all his old students by name.

All through the book there is the *patois* of the profession, its stenches and hideosities, its drama and drabness, its pathetic limitations and its divine achievements, and above all there is its self sacrificing and self limiting toil. The story is told with the ease one would expect from the author of some twenty-five novels, and with a convincing faithfulness to detail that proclaims him what once he was, a disciple of Aesculapius.

In the doctor's unremitting toil lies the tragedy of the book. It is his work that keeps him from ever really knowing the wife he genuinely loves and the son who becomes his all. More tragic still, it is his work that with merciless irony makes him the cause of their death. To the one he gave unwittingly but nevertheless surely the germs of puerperal sepsis and to the other the first too-blessed relief from recurring pain. "Was ignorance a crime? Should men be punished so heavily for their ignorance?" he asked himself and answered, "Whether they should or should not be punished, they undoubtedly were."

The philosophy of the book is mature and sane if somewhat sombre. The doctor believed that "as a whole life was much of a muchness, that good and evil were generally well balanced, that no man by taking thought, could greatly alter the shape of it, and that, since the end was the same in any case human beings would be better advised to take it as it was."

Indited to the Right Honorable David Lloyd George, O.M., whose Invalidity Insurance Act, according to the dedication "gave greater dignity and security to the General Practitioner in 1913," the book without doubt holds a brief for the socialization of medicine. All through it sickness and hospital insurance for the working classes are shown to operate naturally and helpfully. It is to be noted that voluntary insurance was working well according to the book before compulsory insurance was introduced, and that at the end of the book the Invalidity Insurance Act is still a comparatively new thing. That the Act helps more patients pay their bills is easily granted and that it gives the doctors more pay is easily granted. That it gets the patient better medicine is not contended and it certainly is not proved. Neither is it proved that the Act is a cure for the old medico-economic ill of some doctors having too much to do to do it well, and others having too little to do to live well. Neither is it proved that the Act helps the public to determine which physician offers the best medical aid. As before and as always the public must content itself with whatever is available, good, bad or indifferent.

No one will quarrel with the author's belief that the public is better off in the hands of the devoted humanitarian of the old school than in the hands of an unsympathetic though highly trained modern doctor in pursuit of the almighty dollar—"a dispassionate benevolence is one of the highest gifts of wisdom." And no doctor will quarrel with his belief in the dangers of lay control of the profession. To most doctors it is barely probable that the book will seem an unanswerable plea for more and better postgraduate schools of medicine. Perhaps here again in an effort to better conditions we might run into the temptation of government subsidy and control.

B. M. N.

Dr. Bray's Book.

Synopsis of Clinical Laboratory Methods written by W. E. Bray, M.D., Professor of Clinical Pathology and Director of Clinical Laboratories at the University of Virginia and published by C. V. Mosby Company, has just appeared in a second edition. As the title suggests it is a compendium of laboratory methods useful to the doctor and technician. It is an up to the minute text that wastes no words and yet is clear and accurate. New procedures which are included in the edition are "serum phosphatase determination, titration of staphylococcus antitoxin in the blood serum, Ivy bleeding time, peroxidase-Giemsa staining method, cough plate method for diagnosis of whooping cough, opsonocytophagic test for determining the immunity status in undulant fever, the halo or diffraction method for measuring erythrocytes, vitamin C titration, determination of cyanates in the blood, 'phthalein elimination curve, determination of sulfanilamide in the blood, the differential heterophile agglutination for infectious mononucleosis, test for morphine in the urine, and the optimum dose titration of antigen for the Wassermann test."

A year or more ago we decided to comment editorially upon all books published by Virginia doctors. The decision has involved us in a more ambitious undertaking than ever we dreamed of. Books by Virginia doctors are apparently being turned out at

a surprising rate. The book under discussion is an example of their real worth.

Medicine and the Muse.

In a day when many mean things are being said about doctors it is a relief to run upon a whole book of encomiastic verse dedicated to them. A few doctors write poetry. Many, because they constitute an educated class, appreciate poetry. For these reasons the medical profession should be grateful to Emilie Conklin for a book of verse entitled *Doctors, I Salute!*, "the first book of verse ever dedicated to the medical profession." We present our compliments to Mrs. Conklin and hope that this little volume of verse will finds its way not only into the hands of the medical profession but into the hands of many others who would like to know of the ways, of the dreams and of the accomplishments of their doctors.

Department of Clinical and Medical Education of the Medical Society of Virginia

University of Virginia Medical School Clinic.

The twenty-second semi-annual postgraduate clinic was held at the University of Virginia Medical School on Friday, December 2. The entire morning session was devoted to showing a series of medical motion pictures at the University Theater. The guest clinician on the afternoon program was Dr. John Homans, Clinical Professor of Surgery at Harvard University and well known as author of the textbook on surgery. The entire program as arranged by Dr. Staige Blackford at the request of Dr. L. T. Royster, Chairman of the Committee on Graduate Clinics, follows:

9:00-9:26 A. M.—"THE PHYSIOLOGY OF FERTILIZATION IN THE HUMAN FEMALE"
Made by Dr. Ayres Anderson, Denver, Colorado.
(Exhibited through the courtesy of Mead Johnson & Co.)

9:30-10:15 A. M.—"ALLERGY"
Made by Dr. Bret Ratner, New York
(Exhibited through the courtesy of Mead Johnson & Co.)

10:20-10:45 A. M.—"ELECTROCARDIOGRAPHY"
Made by Dr. L. M. Hurxthal, Boston
(Exhibited through the courtesy of The Lahey Clinic)

10:55-11:40 A. M.—"THE SERUM TREATMENT OF PNEUMONIA" (new film)
(Exhibited through the courtesy of the Lederle Laboratories)

11:45-12:15 P. M.—"COLLAPSE THERAPY"—PNEUMOTHORAX AND THORACOPLASTY
(Exhibited through the courtesy of Eli Lilly Co.)

LUNCH

The afternoon session was held in the Medical School Amphitheatre.

2:00-3:00 P. M.—"RECENT ADVANCES IN CHEST SURGERY"
Dr. E. C. Drash, Assistant Professor of Clinical Surgery and Gynecology, University of Virginia, Department of Medicine

3:00-4:00 P. M.—CLINIC: "CHRONIC ULCERS OF THE LEG"
Dr. John Homans, Clinical Professor of Surgery, Harvard University

The following doctors registered at the clinic:

Dr. B. A. Rice, Forest.
Dr. C. D. Bennett, Chatham.
Dr. D. M. Kipps, Front Royal.
Dr. Percy Harris, Scottsville.
Dr. W. A. Kyger, Free Union.
Dr. E. B. Dovell, Unionville.
Dr. G. R. Elliott, Orange.
Dr. T. R. Rolston, New Hope.
Dr. A. L. Tynes, Staunton.
Dr. J. F. Thaxton, Tye River.
Dr. H. G. Byrd, Louisa.
Dr. Harloe Bailey, Rural Retreat.
Dr. Florence Mahoney, Mary Baldwin College.
Dr. E. A. Harper, Lynchburg.
Dr. R. E. Maurer, Lynchburg.
Dr. T. H. Daniel, Charlottesville.
Dr. M. L. Rea, Charlottesville.
Dr. Dan Nichols, Charlottesville.
Dr. Marshall J. Payne, Staunton.
Dr. W. F. Hartman, Swoope.
Dr. G. B. Barrow, Staunton.
Dr. J. A. Hurt, Staunton.
Dr. John F. McGavock, Crozet.
Dr. A. M. Weaver, Colony.
Dr. Charles K. Reinke, Colony.
Dr. N. P. Cocke, Charlottesville.
Dr. Thomas E. Jones, Charlottesville.
Dr. A. A. Sizer, Schuyler.
Dr. C. H. Iden, Berryville.
Dr. Frank E. Tappan, Berryville.
Dr. C. O. Dearmont, White Post.
Dr. J. D. Miller, Bridgewater.
Dr. A. F. Robertson, Staunton.
Dr. C. M. Rice, Sweetbriar.

Dr. R. C. Manson, Richmond.
Dr. John P. Lynch, Richmond.
Dr. Robert V. Terrell, Richmond.
Dr. E. D. Davis, Crozet.
Dr. Homer E. Clark, Massie's Mills.
Dr. R. L. Page, Batesville.
Dr. W. C. Mason, Gordonsville.
Dr. H. C. McCoy, Gordonsville.
Dr. T. E. Patteson, Ransons.
Dr. H. S. Daniel, Louisa.
Dr. Charles E. Watson, Broadway.
Dr. L. G. Roberts, Moorman's River.
Dr. R. B. Turnbull, Blue Ridge Sanatorium.
Dr. John E. Cole, Fredericksburg.
Dr. T. Welch Dew, Fredericksburg.
Dr. H. L. Baptist, Ivy Depot.
Dr. William Wood, Charlottesville.
Dr. Charles L. Savage, Ashland.
Dr. Edwin Vaughan, Ashland.
Dr. J. W. Devine, Jr., Lynchburg.
Dr. Charles W. Putney, Staunton.
Dr. H. F. White, Fishersville.
Dr. W. H. Springall, Gloucester.
Dr. W. A. Murphy, Staunton.
Dr. Frank B. Stafford, Blue Ridge Sanatorium.

Internal Medicine.

At the present time arrangements are being made for postgraduate courses in internal medicine to be offered in Lynchburg and Alexandria. The local societies in these two cities have appointed committees to select topics, suggest speakers and make local arrangements for the courses. It is expected that these courses will be begun early in the new year. Other local societies desiring to make arrangements for similar short courses should communicate with the Executive Secretary.

GEORGE B. ZEHMER,
Executive Secretary.

Proceedings of Societies

James River Medical Society.

On December 12, doctors from Buckingham, Fluvanna and Cumberland Counties met and organized the James River Medical Society and the following officers were elected: President, Dr. J. H. Yeatman, Fork Union; vice-president, Dr. N. P. Snead, Cartersville; and secretary-treasurer, Dr. E. J. Haden, Ore Bank. Additional members are:

Dr. Perkins Glover, Arvonia.
Dr. S. W. Selden, Kents Store.
Dr. J. H. Mitchell, Dillwyn.
Dr. J. E. Haynesworth, Buckingham.
Dr. T. L. Driscoll, Columbia.
Dr. A. C. Whitley, Palmyra.
Dr. T. E. Patteson, Ransons.
Dr. J. N. Dudley, Farmville.
Dr. E. B. Nuckols, Cumberland.
Dr. P. E. Tucker, Buckingham.

Meetings will be held quarterly at specially designated places, the next to be at the William Frank Hotel, Fork Union, on January 11, 1939, at 8:00 p. m.

The Lynchburg Academy of Medicine

Held its regular monthly meeting in the Elks' Club, December 5, with the president, Dr. Elisha Barksdale, presiding.

As this was the annual meeting, only business for the year was attended to. The Academy voted $25.00 to the Christmas charity fund of the Elks' Club as a token of appreciation for the use of their club as a meeting place.

The draft of proposed understanding between the Medical Society of Virginia and the Farm Security administration was approved.

A committee of Drs. E. G. Scott, Chairman, John Hundley, Jr., and D. P. Scott was appointed to arrange postgraduate courses in internal medicine through the extension division of medical education.

Our yearly contribution to Journals was raised from $80.00 to $100.00.

In the election of officers, Dr. S. E. Oglesby was elected president, Dr. E. G. Scott, vice-president. Drs. Powell Dillard and H. L. Riley were elected to the Board of Trustees which is now composed of Drs. E. Barksdale, S. E. Oglesby, E. G. Scott, James Gorman, J. W. Devine, Sr., Powell Dillard and H. L. Riley.

At the meeting of the Academy on November 7, Dr. C. C. Coleman of Richmond was the guest speaker and discussed in minute detail the many problems which arise in the "Management of Acute Head Injuries". In accordance with the speaker's request, previously written out questions presented by

members of the Academy were fully discussed by Dr. Coleman and the subject proved most interesting and enlightening.

C. E. KEEFER, M.D.,
Secretary-Treasurer.

The Richmond Academy of Medicine

Held its annual meeting on December 13, at which time the following officers were elected for the coming year: President, Dr. Karl S. Blackwell; vice-presidents, Dr. J. Powell Williams and Dr. Harry J. Warthen; recording secretary, Dr. James P. Baker; and sergeant-at-arms, Dr. Charles Outland. The board of directors for 1939 will consist of Dr. A. I. Dodson, retiring president, Dr. Blackwell, Dr. J. Powell Williams, Dr. M. Pierce Rucker, Dr. C. M. Caravati, Dr. T. Dewey Davis, and Dr. T. N. Barnett. Miss Mary Martha Nokely is executive secretary-treasurer.

After the election, the president and chairmen of various committees gave their annual reports, following which a delicious buffet supper was served in the dining room of the building.

The Arlington County Medical Society

Held its final meeting of 1938 at the Washington Golf and Country Club, on December 15, under the presidency of Dr. Charles F. Kincheloe. Following a short business session, the election of new officers for 1939 was held. Dr. Alfred M. Palmer of Arlington was elected president, Dr. Charles C. Canada of East Falls Church, vice-president, and Dr. Henry L. Bastien of Arlington was re-elected secretary-treasurer.

Dr. Paul W. Bowden, assistant county health officer, and Captain Robert L. Cavenaugh, Medical Corps, U. S. Army were elected to membership.

The Arlington County Medical Society meets monthly at 8:30 P. M. on the third Thursday at the Washington Golf and Country Club. Any members of the Medical Society of Virginia who are in this section of the state on these dates are cordially invited to attend.

HENRY L. BASTIEN,
Secretary.

Fredericksburg Medical Association.

New officers of this Association, who will be installed in January, are: Dr. J. Minor Holloway, president; Dr. L. Philip Cox, vice-president; and Dr. Thomas B. Payne, secretary-treasurer (re-elected). All are of Fredericksburg.

The Roanoke Academy of Medicine

Held its December meeting on the 5th, with the following program: The Prevention of Hearing Difficulties in Children by Dr. H. B. Stone, Jr.; and Changes in Venous Pressure and Body Weight Following the Treatment of Congestive Heart Failure by Dr. J. Edwin Wood, Jr., University of Virginia.

Dr. W. W. S. Butler is president of the Academy and Dr. A. C. Davis, secretary-treasurer.

The Southside Virginia Medical Association

Met in Petersburg, December 13, with Dr. Meade Edmunds, president pro tem, presiding. The following presented papers, which were freely discussed: Drs. H. C. Cantor, Ruth Mason Grigg, and George H. Reese, Petersburg; Drs. Harry J. Warthen, Douglas G. Chapman, and James P. Baker, Jr., Richmond.

Officers for 1939 were elected as follows: President, Dr. C. S. Dodd, Petersburg; vice-presidents, Drs. R. S. Montgomery, South Hill; H. G. Stoneham, Waverly; L. A. Law, Alberta; and W. T. Gay, Suffolk; and secretary-treasurer, Dr. R. L. Raiford (re-elected), Franklin. The executive committee is Drs. W. D. Kendig, Kenbridge; W. J. Ozlin, South Hill; and J. L. Hamner, Mannboro. Drs. Reuben F. Simms and Harry J. Warthen, Richmond, were elected to honorary membership.

Following the business meeting a dinner was tendered the members and guests by the Petersburg Medical Faculty.

This association will hold its next meeting in Franklin on the second Tuesday in March.

The Petersburg Medical Faculty

Recently elected the following officers: President, H. M. Snead, succeeding Dr. Leta J. White; vice-presidents, Drs. J. E. Hamner and Philip Jacobson; and secretary, Dr. Wilbur M. Bowman.

The South Piedmont Medical Society

Held its regular semi-annual meeting in South Boston, November 22, with the president, Dr. C. D. Bennett, Chatham, presiding. There was an attendance of about forty physicians. The following are subjects and leaders of the symposium: Prenatal Care by Dr. E. S. Groseclose, Lynchburg; Obstetrical Analgesia and Anesthesia by Dr. F. O. Plunkett, Lynchburg; and Operative Obstetrics by Dr. Walter D. McMann, Danville. Other papers by invited guests were: Post Hospital Care of Surgical Patients by Dr. Hugh H. Trout, Roanoke; Treat-

ment of Constipation with Special Reference to Functional Causes by Dr. F. C. Rinker, Norfolk; and The Diagnosis and Treatment of Aortic Syphilis by Dr. Kinloch Nelson, Richmond.

Dr. J. A. Owen, Turbeville, is secretary of this society.

The next meeting will be held in Lynchburg in April, at which time new officers will be elected.

News Notes

We Wish You A Happy And Prosperous New Year!

Seaboard Medical Association of Virginia and North Carolina.

At the annual meeting of this Association held in Greenville, N. C., December 6-8, the following officers were elected: President, Dr. Julian L. Rawls, Norfolk; vice-presidents, Dr. Wm. M. B. Brown, Greenville, N. C.; Dr. J. L. Rawls, Suffolk; Dr. J. A. Payne, Sunbury, N. C.; and Dr. Southgate Leigh, Norfolk; and secretary-treasurer, Dr. Clarence Porter Jones (re-elected), Newport News.

The 1939 meeting will be held at Virginia Beach, December 5-7.

Appointments Announced by State Hospital Board.

Senator Morton G. Goode, chairman of the State Hospital Board, has announced the following appointments:

Dr. D. L. Harrell, Jr., first assistant physician at the State Colony for Epileptics and Feebleminded, has been appointed superintendent of the State Colony for colored patients of this class to be opened at Petersburg about the first of January;

Dr. John O. Hurt, recently assistant physician at the Western State Hospital in Staunton, has been named principal hospital physician at the State Colony for Epileptics and Feebleminded, succeeding Dr. Harrell;

Dr. Louis X. Kolipinski has been promoted from senior assistant physician to principal hospital physician at the Central State Hospital, Petersburg, and Dr. Frank A. Dick has been appointed an assistant physician at Central State Hospital.

News Notes from the Medical College of Virginia.

Dr. Porter P. Vinson, professor of bronchoscopy and esophagoscopy, was present for the thirteenth Stanford Chaille Memorial Oration at New Orleans, Louisiana, December 12. Doctor Vinson spoke on "Aids in the Early Diagnosis of Primary Bronchial Malignancy".

Excavation for the new teaching hospital has been completed and the driving of piles started on December 15. The contract for elevators has been awarded the Otis Elevator Company; the general contract for construction will be let in the spring.

Dr. Walter E. Vest, an alumnus of the college, and newly elected president of the Southern Medical Association, was a recent visitor to the institution.

The Founders' Day exercises on December 1 were well attended by students, faculty, and friends of the college. Mr. Virginius Dabney, Editor of the *Richmond Times-Dispatch*, spoke on "Medicine in a Changing World".

The enrollment for the session of 1938-39 shows 312 in medicine; 141 in dentistry; 119 in pharmacy; 135 in nursing, a total enrollment of 707. In medicine there are thirty-six female students registered, two in dentistry and seven in pharmacy.

The college was host to the Section on Zoological Sciences of the first Virginia meeting of the American Association for the Advancement of Science in Richmond, December 27 to 31.

The Sub-Section in Dentistry will also have its headquarters at the college.

Some 400 papers are listed in the program for these two sections, the one on Zoological Sciences being one of the largest in the A. A. A. S.

News from University of Virginia, Department of Medicine.

Dr. Robin C. Buerki, Superintendent of the State of Wisconsin General Hospital and Director of the Study of the Commission on Graduate Medical Education, visited our Medical School on November 11.

Dr. M. V. Ziegler, of the U. S. Public Health Service, spoke to the students of the Fourth Year Class in the Medical School on November 12.

Dr. E. S. Elwood, Secretary-Treasurer of the National Board of Medical Examiners, spoke to the students of the Second Year Class in the Medical School on November 9.

On November 21, Dr. William Henry Sebrell, of the U. S. Public Health Service, addressed the University of Virginia Medical Society on the subject of Pellagra.

Dr. John Homans, Clinical Professor of Surgery at Harvard University, spoke before the University of Virginia Medical Society at their meeting on December 1 on the subject of Thrombophlebitis.

The fifth Post-Graduate Course in Ophthalmology and Otolaryngology sponsored by the University of Virginia was held in the Medical School from December 6 to 9. Lectures and clinics were given by Dr. Clarence H. Smith, Professor of Diseases of the Ear, New York Post-Graduate Medical School; Dr. Chevalier L. Jackson, Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University; Dr. E. Ross Faulkner, Surgeon Director, Manhattan Eye, Ear and Throat Hospital, New York City; Dr. Romeo A. Luongo, Graduate School of Medicine, University of Pennsylvania; Dr. Harry S. Gradle, Professor of Ophthalmology, Northwestern University Medical School; Dr. Grady E. Clay, Professor of Ophthalmology, Emory University; and Dr. James W. White, Associate Professor of Clinical Ophthalmology, New York University. At the dinner held at Farmington Country Club on December 7, Mr. William Shands Meacham, of the *Richmond Times-Dispatch*, spoke on The Relationship of the Press to Medicine. Forty-nine physicians were registered for the course.

The twenty-second Postgraduate Clinic sponsored by the Medical Society of Virginia was held at the University of Virginia on December 2. The morning session consisted of the exhibition of the following medical motion pictures: Clinical Endocrinology, Management of Pneumonia, Electrocardiography and The Anemias. At the afternoon session Dr. John Homans, of Harvard University, conducted a clinic on Chronic Ulcers of the Leg and Dr. E. C. Drash, of the University Hospital, spoke on Recent Advances in Chest Surgery. Fifty-nine physicians attended the Clinic.

On December 9, Dr. Alfred Blalock, of Vanderbilt University, addressed the University of Virginia Medical Society on the subject of Surgical Shock.

Dr. Vilray P. Blair, Professor of Clinical Surgery at Washington University in St. Louis, visited the Medical School on December 5.

Dr. Edwin P. Lehman attended the meeting of the Southern Surgical Association at White Sulphur Springs from December 6 to 8 and presented a paper on Thyrotoxicosis, Including a Study of the Duration of Pre-Operative Treatment.

The New York Polyclinic Medical School and Hospital

Announces that its Clinical Society will hold its monthly meeting on Monday evening, January 9, 1939, at which time the following program will be presented:

1. "The Prostate and the Practitioner" by Joseph F. McCarthy, M.D., Professor of Urology, New York Polyclinic Hospital. Discussion to be opened by J. Sydney Ritter, M.D., and Samuel E. Kramer, M.D.

2. "Recent Advances in the Treatment of Internal Diseases" by Llewellys F. Barker, M.D., Baltimore, Md. Discussion to be opened by Orrin S. Wightman, M.D., Bernard Sachs, M.D. and James P. Croco, M.D.

3. "Clinical Diagnosis of Peripheral Vascular Diseases—Motion Pictures" by Benjamin Jablons, M.D., New York Polyclinic Hospital.

Dr. Rudolf Schindler, Chicago, Ill., read a paper on "The Clinical Value of Gastroscopy" on November 30, and Dr. H. M. Eberhard, Professor of Gastroenterology at Hahnemann Medical School, Philadelphia, Pa., read a paper on "The Effect of Hot and Cold on the Gastro-intestinal Tract" on December 15.

Married.

Dr. Ennion Skelton Williams and Miss Ann Hill Brown, both of Richmond, December 2. Dr. Williams is a graduate of the Medical College of Virginia in 1930.

Dr. James Lucius Davis, class of '36, University of Virginia, and Miss Katherine Longcor, Greendell, N. J., November 19. Dr. Davis served his internship at the Essex County Hospital, Belleville, N. J. They will make their home at Thacker Mines, W. Va.

Dr. William Frederic Delp and Miss Dorothy Elizabeth Wallner, both of Pulaski, November 15. Dr. Delp is an alumnus of the Medical College of Virginia, class of '34.

Dr. Marvin Smith Cashion, Mooresville, N. C., and Dr. Delores Isabel Mendez, San Juan, Puerto

Rico, in November. Both are graduates of the Medical College of Virginia in 1937 and are now serving residencies at the Presbyterian Hospital in San Juan.

Superintendent of Catawba Sanatorium.

Dr. John B. Nicholls, who for some years has been medical director of Catawba Sanatorium in this State, has been named to the superintendency of this Sanatorium, thus combining the responsibilities of his past duties and those of the late Mr. A. Lambert Martin, formerly business manager there.

Southern Surgical Association.

At the recent meeting of this Association at White Sulphur Springs, W. Va., under the presidency of Dr. Lloyd Noland of Fairfield, Ala., the following were elected officers for the coming year: President, Dr. A. O. Singleton, Galveston, Texas; vice-presidents, Dr. Barney Brooks, Nashville, Tenn., and Dr. Carrington Williams, Richmond; and secretary, Dr. Alton Ochsner (re-elected), New Orleans, La. Augusta, Ga., was selected as the 1939 place of meeting.

Dr. A. Stephens Graham of Richmond was elected to membership in the Association at this meeting, being the only Virginia doctor to receive this honor.

Dr. George B. Arnold,

Superintendent of the State Colony for Epileptics and Feebleminded, has been named by Governor Price as a member of his advisory board on mental hygiene, established several years ago. His term of office is to February 1, 1942.

Dr. J. G. Bentley,

Recently of Bristol, who has been engaged in the practice of medicine in Southwestern Virginia for the past twenty-four years, has purchased the old Bentley home at Pores Knob, N. C., where he has located and will continue the practice of his profession.

A Correction.

In the list of Special Committees given under the President's Message in the December issue of the MONTHLY, we listed one member of the Child Welfare Committee as Dr. Edgar A. Harper. This was an error and should have been Dr. Edwin A. Harper.

Mississippi Valley Medical Society 1939 Essay Award.

The Mississippi Valley Medical Society offers a cash prize of $100.00, a gold medal and a certificate of award for the best unpublished essay on a subject of interest and practical value to the general practitioner of medicine. Entrants must be members of the American Medical Association, and the winner will be invited to present his contribution before the next annual meeting of the Mississippi Valley Society, in September, 1939. All contributions must not exceed 5,000 words, typewritten in English manuscript form, submitted in five copies, and must be received *not* later than May 1, 1939. Further details may be secured from Dr. Harold Swanberg, secretary, Mississippi Valley Medical Society, 209-224 W. C. U. Bldg., Quincy, Ill.

Dr. James Q. Gant, Jr.,

Class of '35, Medical College of Virginia, has recently been appointed to the drug division of the staff of the Federal Food and Drug Administration, in Washington. He served his internship at Stuart Circle Hospital, Richmond, and later as resident physician at Bellevue Hospital, New York, in the dermatological and syphilological service.

Dr. McIlwaine to Serve on Medical Examining Board.

Governor Price has appointed Dr. William B. McIlwaine, Petersburg, as a member of the State Board of Medical Examiners, succeeding the late Dr. Fletcher J. Wright. He will serve for a term ending April, 1942.

Dr. Edwin J. Palmer,

Class of '34, Medical College of Virginia, now a member of the medical staff at the State Hospital, Gardner, Mass., recently assisted in the course given at the Metropolitan State Hospital for physicians who were preparing for the December Board of Psychiatry and Neurology.

Dr. William W. Zimmerman,

Recently of Waynesboro, has located in Hillsboro, where he has taken over the practice of the late Dr. H. H. Green.

Physician to State Teachers College.

Dr. Jean McNutt Martin of Middlebrook has been appointed resident physician at the State Teachers College, Farmville, succeeding Dr. Susan W. Field who resigned recently and returned to her home in Nebraska because of her health. Dr. Martin is a graduate of the University of Virginia School of Medicine in the class of '36, following which she interned at North Carolina Hospitals, and has re-

cently been at Bellevue Hospital in New York City. She will enter upon her new duties on January 8.

"Guard Against Syphilis"

Is the slogan of the National Social Hygiene Day to be observed on February 1. There will be some 5,000 meetings throughout America to highlight present community campaigns against syphilis and public attention will be focused on vital next steps in the conquest of syphilis. The American Social Hygiene Association reports increased activity and interest on the part of official and voluntary health and welfare agencies, civic groups, service clubs, women's organizations, churches, schools and upward of 1,000 youth bodies, and this points to a larger nation-wide demonstration than in previous years. The United States Public Health Service is again cooperating in this event.

Posters, publicity and program aids, etc., may be secured from the American Social Hygiene Association, 50 W. 50th St., New York.

Dr. Linwood D. Keyser,

Roanoke, was a guest speaker of the Southeastern Branch of the American Urological Association meeting in Louisville, Kentucky, on December 2, at which time he reviewed his researches on the etiology of urinary calculi in an essay entitled "Modern Concepts of Stone in the Urinary Tract".

Drs. Johns, Daniel and Johns.

Announcement has been made of the association of Dr. William A. Johns with Drs. Frank S. Johns and Donald S. Daniel in the practice of surgery, with offices in the Johnston-Willis Hospital, Richmond.

Dr. James E. Nance,

Who has been resident eye, ear, nose and throat physician of the New Jersey State Hospital at Trenton for the past five years, has located at Kannapolis, N. C., where his practice will be limited to diseases of the eye, ear, nose and throat. Dr. Nance is an alumnus of the Medical College of Virginia and practiced for a time at Franklin, Va., before going to New Jersey.

Postgraduate Institute.

The Philadelphia County Medical Society announces the completion of its scientific program for the Fourth Annual Postgraduate Institute to be held in the Bellevue-Stratford Hotel, Philadelphia, during the week beginning March 13. Blood Dyscrasias and Metabolic Disorders are the subjects to be considered, these to be subdivided for convenience in instruction into eighty-six clinical lectures, with open forum discussions.

Further information may be secured from the Philadelphia County Medical Society, Twenty-first and Spruce Streets, Philadelphia, Pa.

New Members of National Advisory Cancer Council.

Surgeon General Thomas Parran of the U. S. Public Health Service has announced that Dr. James B. Murphy, Chief of the Cancer Research Division of the Rockefeller Institute, New York, and Dr. Mont Rogers Reid, Director of Surgical Service of the Cincinnati General Hospital and Professor of Surgery at the University of Cincinnati, have been named as new members of the National Advisory Cancer Council for three-year terms.

Drs. McCastor Receive Appointments.

Dr. Joseph McCastor, class of '27, Medical College of Virginia, now living in New York City, has received an appointment on the Surgical Staff of the City Hospital there, and his wife Dr. Mary McCastor, who graduated abroad later, has received a residency in anesthesia in the New York Postgraduate Medical School and Hospital.

Dr. W. R. Bond

Recently moved from Richmond to New York, to become affiliated with the medical research division of the Schering Corporation with laboratories at Bloomfield, N. J.

Dr. William K. Lloyd,

For several years located at Christiansburg, has moved to Anniston, Ala., where he will be engaged in the practice of obstetrics and gynecology.

Birth.

Dr. and Mrs. W. A. Porter of Hillsville have been receiving congratulations on the birth of a daughter, Patricia Anne, born on November 21.

Admitted to Fellowship in American College of Surgeons.

At the recent meeting of the American College of Surgeons, the following Virginia doctors were admitted to fellowship:

Dr. Cornelinus B. Courtney, Newport News.

Dr. Francis R. Crawford, Farmville.

Dr. William T. Gay, Suffolk.

Dr. John A. Pilcher, Jr.,

Roanoke, for sometime associated with the Gill Memorial Hospital there, has just completed a post-graduate course in eye, ear, nose and throat diseases in London, England, and opened offices in Shenandoah Life Building, Roanoke, the first of January, where he will limit his practice to these specialties.

The American Board of Ophthalmology

Announces an important change in its method of examination of candidates for the Board's certificate. They will be divided into two parts. Candidates whose applications are accepted will be required to pass a WRITTEN examination which will be held simultaneously in various cities throughout the country approximately sixty days prior to the date of the oral examination.

ORAL examinations will be held at the time and place of the meeting of the American Medical Association and of the American Academy of Ophthalmology and Oto-Laryngology, and occasionally in connection with other important medical meetings. The ORAL examination will be on: External Diseases, Ophthalmoscopy, Pathology, Refraction, Ocular Motility, Practical Surgery.

Only those candidates who pass the written examination and who have presented satisfactory case reports will be permitted to appear for the oral examination.

Examinations scheduled for 1939: WRITTEN: March 15 and August 5. ORAL: St. Louis, May 15; Chicago, October 6.

Applications for permission to take the written examination March 15 must be filed with the Secretary not later than February 15. Forms and detailed information should be secured at once from Dr. John Green, Secretary, 6830 Waterman Avenue, St. Louis, Mo.

The National Society for the Prevention of Blindness

Announces the appointment of a Nursing Advisory Committee, headed by Miss Katherine Tucker, Professor of Public Health Nursing in the School of Education, University of Pennsylvania. The Committee has been selected to represent the various fields in nursing. Besides Miss Tucker, there are eight members of the Committee, one of them being Miss Josephine McLeod, Secretary-Treasurer of the Virginia State Board of Examiners of Nurses, Richmond.

The Committee is undertaking, as its first step, an analysis of nursing functions which contribute to the conservation of sight.

The Winchester Memorial Hospital

Has enlarged its facilities with a new fire-proof wing, which houses modern equipment for the operation of X-ray and pathological laboratories, a department of physical therapy, and an emergency operating room for first-aid treatment of accident cases. The funds for these improvements were provided by persons as memorials to relatives.

Medical Research.

Physician having access to a complete medical library offers his services for locating references or for medical research of any kind, for authors and others. Fees reasonable. Address "No. 38", care VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond. (*Adv.*)

Home for Convalescences.

A home for the care and treatment of chronic aged and convalescences has been opened at Arrington, Nelson County, Virginia, under the direction of Dr. and Mrs. Fred M. Horsley. Information upon request. (*Adv.*)

For Sale:

Cystoscope, Brown-Buerger, convertible, with concave sheath—complete accessories; used less than six times; cost $120.00; no reasonable offer refused. Write "Cystoscope", care this journal, 1200 East Clay Street, Richmond. (*Adv.*)

Obituary Record

Dr. Lewis Gravely Pedigo,

Prominent physician of Southwestern Virginia, died at his home in Salem, November 21. He had retired from active practice about five years ago because of ill health. Dr. Pedigo was a native of Hanover County and was eighty years of age. He was known as the "dean" of the Roanoke College alumni, from which he graduated in 1876. His medical degree was received from the former New York University Medical College in 1881. Dr. Pedigo practiced in Roanoke for about thirty years and was an ex-president of the Roanoke Academy of Medicine; a

former vice-president of the Medical Society of Virginia, of which he had been a member for fifty-three years; a former president of the Southwestern Virginia Medical Society; and was a member of the British-American Society for Psychic Research.

Dr. Pedigo was widely known for his discovery of an antidote for prussic acid and the value of oil of eucalyptus in the treatment of tuberculosis. He also did extensive research in mental diseases.

His wife and a brother survive him.

Dr. Jesse N. Clore,

One of Madison County's most beloved and influential citizens, died suddenly on December 1, following a heart attack. He was born in Madison in 1869 and graduated from the Medical College of Virginia in 1896. Dr. Clore was active in civic life, having served with the Madison Chamber of Commerce, and was a former secretary of the County Board of Health. He had been a member of the Medical Society of Virginia for thirty-three years. A son and three daughters survive him.

A local newspaper writes: "With the death of Dr. Clore, there passes another member of that staunch but fast disappearing group—The Country Doctor. For a lifetime, through all kinds of weather, at any time of day or night, Dr. Clore rode the highways and byways, bringing relief and aid to the sick and suffering. He was known to do the work of two men during the later years of his life and had frequently been appealed to to take life easier. But he felt the sick had first call on his services and through the years his work increased instead of decreasing. . . . To people in all walks of life his passing meant not only the community's loss but the loss of a personal friend as well."

Dr. John Emmet Early,

Prominent physician of Charlottesville, died December 12, at the age of seventy. He was a graduate of the University of Virginia, Department of Medicine in 1893, and had practiced in Charlottesville for forty years. Dr. Early was a former member of the City Council, and active in the medical life of his section. He had been a member of the Medical Society of Virginia since 1900. His wife and a son survive him.

Dr. Walter Carlton Rosser,

Lynchburg, died November 24, after a long illness. He was sixty-three years of age and a graduate of the former University College of Medicine, Richmond, in 1897. Since his graduation, Dr. Rosser had practiced in Campbell County and located in Lynchburg in 1926. He was a Mason and had been a member of the Medical Society of Virginia for thirty-seven years. He is survived by his wife and four children.

Dr. George Oliver Emerson

Died November 21, at his home "Bachelor's Hall" in Pittsylvania County. He was sixty-six years of age and a graduate of the former University College of Medicine, Richmond, in 1898. Dr. Emerson joined the Medical Society of Virginia in 1901. His son, Dr. George Oliver Emerson, Jr., graduated from the University of Virginia, Department of Medicine, in 1937.

Dr. James Thomas Strickland

Died at his home in Roanoke, November 25, following a long illness. He was a native of Patrick County and eight-one years of age. Dr. Strickland received his medical training at the Jefferson Medical College of Philadelphia, graduating there in 1882. He had practiced medicine in Roanoke for forty-six years, and had been a member of the Medical Society of Virginia since 1891.

Dr. William Stone Blakiston,

Arlington, died September 29, from acute bacterial endocarditis. He was thirty-one years of age and a graduate of the George Washington University School of Medicine, Washington, D. C., in 1932. Dr. Blakiston was a member of the Medical Society of Virginia.

Dr. Paul Rutherford MacFadyen, Sr.,

Concord, N. C., died November 26, after an illness of several years. He was sixty-four years of age and a graduate of the former University College of Medicine, Richmond, in 1901. Dr. MacFadyen was the founder of Concord's first hospital and was for many years the only surgeon there. One of his sons is Dr. Paul Rutherford MacFadyen, Jr., class of '29, University of Virginia, Department of Medicine.

Dr. Walter Clark Ashworth,

Former director and owner of the Glenwood Park Sanitarium, Greensboro, N. C., died December 16, after a long illness. He was a half-brother of Dr. O. O. Ashworth, of Richmond.

You Haven't Seen Us Here Before!

This is John Wyeth & Brother's first ad in your State Journal, and we're glad to be here to wish you a Happy and Prosperous New Year—Also to tell you about

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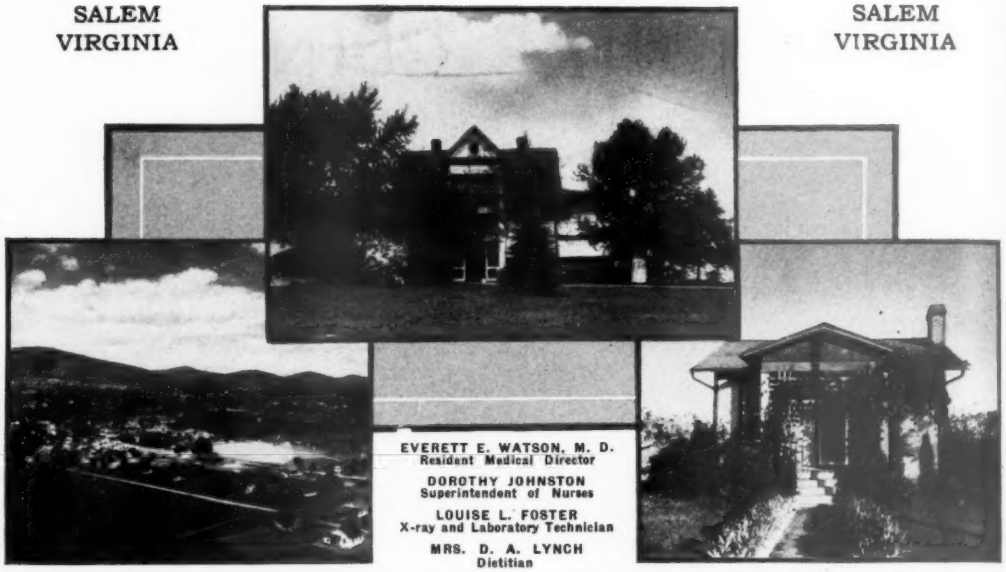

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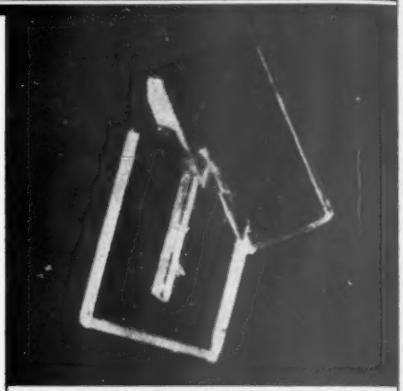

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